THE AUTOMOBILE

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Chateau-Thierry's Climb

Has many entries and a Pipe winner

PARIS, Oct. 7.—Every year somebody prophesies that Chateau-Thierry hill climb will not be held again, and every year more automobilists than ever before cover the forty miles separating the quiet town on the hillside from the capital. This year there were seventy-three actual starters in a multiplicity of classes from small motorcycles to Grand Prix racers.

An Albatross motorcycle, fitted with an Anzini motor and mounted by Olieslaegers, the "Red Devil" of Antwerp, furnished the fastest speed of the day by climbing the mile hill at the rate of 53 miles an hour—splendid going on a 10 per cent. damp grade with two bad turns. Jespers, on the Pipe, built for the German Emperor race, made the fastest time of the cars, climbing the hill at an average of fifty miles an hour. In this class reserved for German Emperor racers, Hemery, on a Benz, came second, with Rochet-Schneider third and fourth, and Minerva fifth.

Darracq captured first and second places in the Targa Florio class, with H. I. S. A. second and La Buire third. When the machines were examined after the run it was discovered that the second Darracq, the machine which won the Sporting Commission Cup at Dieppe, had not a gasoline tank in accordance with the regulations and disqualification was imposed.

In the unlimited racer class Rigal's Grand Prix Darracq made the third fastest time of the day, easily beating an Aries, its only competitor. Rigal's "mechanic" was Mlle. Polaire, a theatrical artiste. Barriaux and his Vulpes had the volturette racer class to themselves and made the moderate time of 1:21 3-5.

READY FOR START ON UNEVEN COBBLESTONES.

An unfortunate accident marked the trials of the racers, as the result of the overzealousness of a member of the fire brigade on duty on the road. During the motorcycle races the military fireman stepped on the course to watch the arrival of the machines. He was surprised by the rapid approach of a motorcycle mounting the hill at sixty miles an hour, and to save himself rushed to the inside of the turn. To avoid a collision the motorcyclist ran wide, missed his turn, and struck a soldier standing on the edge of the course. The unfortunate man was hurried to the hospital and given every attention, but died a few hours later, his death being the first of any spectator at an automobile meet in France since the ill-starred Paris-Madrid affair.

The owner of the Fiat, with which Nazzaro won the German Emperor's Cup and which was engaged to be driven by Bordino, Lancia's mechanic, withdrew at a late hour owing to the machine not being assured against accident.

Paul Faure's 1906 Grand Prix Mercedes racer, which, being equipped with a full side entrance body, was allowed to compete as a touring machine, made the fastest time of the fifty-three touring cars, mounting the hill in 1:14 3-5. Berliet, Aries, Mors and Motobloc followed in this order. In the 140 millimeter class a Gladiator, which took part in Paris-Berlin in 1901, was

BELGIAN PIPE WHICH MADE THE RECORD ROMP.

third fastest of all classes, and first in its own series. Generally the going was good in all the tourist sections, last year's times being slightly exceeded.

The most interesting feature of the tourists was the work done by single-cylinder voiturettes, a class of vehicle which has come to the front in a remarkable manner during the last two years. The fastest time was made by a 4.8-inch bore Lion-Peugeot; Sizaire & Naudin got two first places in the less than 4.8-inch bore class, and a couple of Demeesters made fast time in the 3.9 bore class. All these little machines were fitted with magnetos, Nilmelior predominating. Nothing extraordinary was done by the smallest four-cylinder runabouts, but the class with bore limited to 3.9 inches did some interesting work, Regini-Dixi coming first in 2:13 3-5, followed closely by a La Buire, a Darracq and a Werner, this latter well handled by a lady. Judging from this meet, French manufacturers have fully understood the importance of small low-priced automobiles and have provided a class of vehicles which should more than meet all local requirements. With a few exceptions large makers have not entered the field, the voiturettes being constructed by newly formed firms, organized by men who have broken away from the large factories.

CHICAGO A. C. DECLARES COEY WINNER.

CHICAGO, Oct. 14.—The special committee appointed by the Chicago Automobile Club to investigate the protest of Paul Picard in reference to the 24-hour race of July last, in which C. A. Coey, driving a Thomas, was the winner, has compiled and issued its voluminous report of the investigation. The report is signed by Sidney S. Gorham and Norton H. Van Sicklen, and this paragraph practically tells the story:

"After a careful study of the evidence as reduced to writing by the shorthand reporter, the members of your committee are unanimously of the opinion that no sufficient showing has been made to justify the belief that the award to the Thomas car was not properly made, but that on the contrary it affirmatively appears from the evidence that the scoring was honestly performed, and that, allowing for possible unintentional errors and omissions, the official score shows the correct mileage."

QUAKER CITY'S 1908 ENDURANCE RUN.

PHILADELPHIA, Oct. 14.—After its arduous campaign of the present year, the contest committee of the Quaker City Motor Club is already at work on the details of its annual New Year endurance run, which is scheduled for January 1-2 next. The route selected for the run is via Willow Grove, Doylestown, Easton, Nazareth and Bethlehem to Allentown, where the overnight stop will be made, returning home next day via Kutztown, Reading, Pottstown and Norristown, a distance of about 200 miles.

THOMAS AND RENAULT WANT A 24-HOUR.

The announcement has just been made by the E. R. Thomas Company of its intention to permanently withdraw from circular track racing. Before doing so, however, E. R. Thomas declares that he is anxious to see settled the twenty-four-hour supremacy by a special match between the Thomas, the Renault, and the Fiat, victorious in the three contests held this year in the metropolitan district, at Brighton Beach and Morris Park.

At the last Morris Park contest Paul Lacroix challenged the winner of that event and the Brighton Beach race to a special test. E. R. Thomas responds by declaring on what conditions he will meet the foreign champions. The cars for the final twenty-four-hour race—so far as the Thomas company is concerned—shall be the Thomas, winner of the Brighton Beach contest; the Renault, holding the Morris Park record, and the Fiat, winner of the last race held on that track. The race shall be held on the track best suited for the contest, its selection to be left in the hands of the representatives of the three cars. Montagu Roberts would doubtless be one of the drivers of the Thomas car; Paul Lacroix and Maurice Bernin would handle the Renault again.

To THE AUTOMOBILE representative Paul Lacroix said: "I am prepared to meet the Thomas and Fiat in a special match, using the machine which Bernin and I handled in the Morris Park race of September 6-7. I have no restrictions to make regarding the nature of the contest or the cars which shall take part, and am willing to agree to date and place suitable to the others. Bernin and I will drive again, and we shall use the same car as before."

Manager Fosdick, of the Hol-Tan Company, whose machine won the last twenty-four-hour race, declares that he does not see how the match is possible with Mr. Thomas's restriction that the same cars be used. "Although still selling Fiat cars and possessing the one victorious in the last race, we have nothing to gain by entering in such a race in view of certain changes which are pending in the Fiat representation. Mr. Thomas, who must be aware of these changes, knows that his challenge is useless, for even the new Fiat company is unable to accept it unless it buys the winning machine from us. We are willing to sell."

CHICAGO CLUB HOLDS NINE-EVENT MEET.

CHICAGO, Oct. 14.—Nine events were run in the fall meeting of the Chicago Automobile Club, at the Harlem track, Saturday. The half-hour race, reduced from one hour, was won by a 20-horsepower Cadillac, with 23 3-4 miles. Apperson Jack Rabbit was second, Mitchell third, Tichner fourth, Ford fifth, Pope-Toledo sixth. The Stearns, when traveling fast, went through the fence, with considerable material damage, but without injury to the driver or mechanic. Previously, the same Stearns won the ten miles free-for-all and the pursuit race for stock cars. The five-mile members' race was captured by a 20-horsepower Stoddard-Dayton, a Cadillac got the five-mile race for runabouts listing at $3,000, and a Ford won in the three-mile for cars listing at $1,500 or less. C. W. Van Sicklen won the ten-mile open and the ten-mile handicap with his Indian motorcycle, as well as the three-mile open motorcycle event.

IMPORTERS' AUTOMOBILE SALON ACTIVITIES.

The Importers' Automobile Salon believes in the worth of automobile racing, and it has addressed a letter to the Racing Board of the American Automobile Association asking for co-operation in the adoption of a standard formula for the determination of horsepower. The communication, furthermore, says "that it is the reasonable expectation that the committee of the Salon have at least one member on the A. A. A. Racing Board."

Commenting upon racing on circular tracks originally intended for horse racing, the importers consider that nothing less than a mile course should be used and even this should be banked at the turns, sufficiently oiled, entries to be limited to a safe number and other precautions taken.

NINE FOR AMERICA'S FIRST BALLOON RACE

ON the afternoon of October 21 the second race for the James Gordon Bennett Aeronautical Cup will be started at St. Louis, with representatives from America, France, Germany and England as contestants. Twelve months ago the first race for this trophy, and really the first international balloon race ever held, was started from the Tuileries Gardens, Paris, Lieutenant Frank P. Lahm and Santos-Dumont representing America against complete teams from France, Germany, England, Belgium, Spain and Italy. Lieutenant Lahm won by a journey to the north of Yorkshire, England, and, in accordance with the deed of gift, the second race had to be competed for in this country.

This year only four nations will compete for the trophy, America having three balloons, Germany three, France two, and England one. Owing to an attack of typhoid fever while on military service in France, Lieut. Lahm, last year's winner, has been unable to take part in the second contest. His place has been taken by Major B. Hersey, who acted as his companion in the first race, using the balloon *United States*, of 2,100 cubic meters capacity. Augustus Pope will accompany Mr. Hersey. J. C. McCoy and Captain Charles De F. Chandler will complete the American team with the *America*, of 2,200 cubic meters.

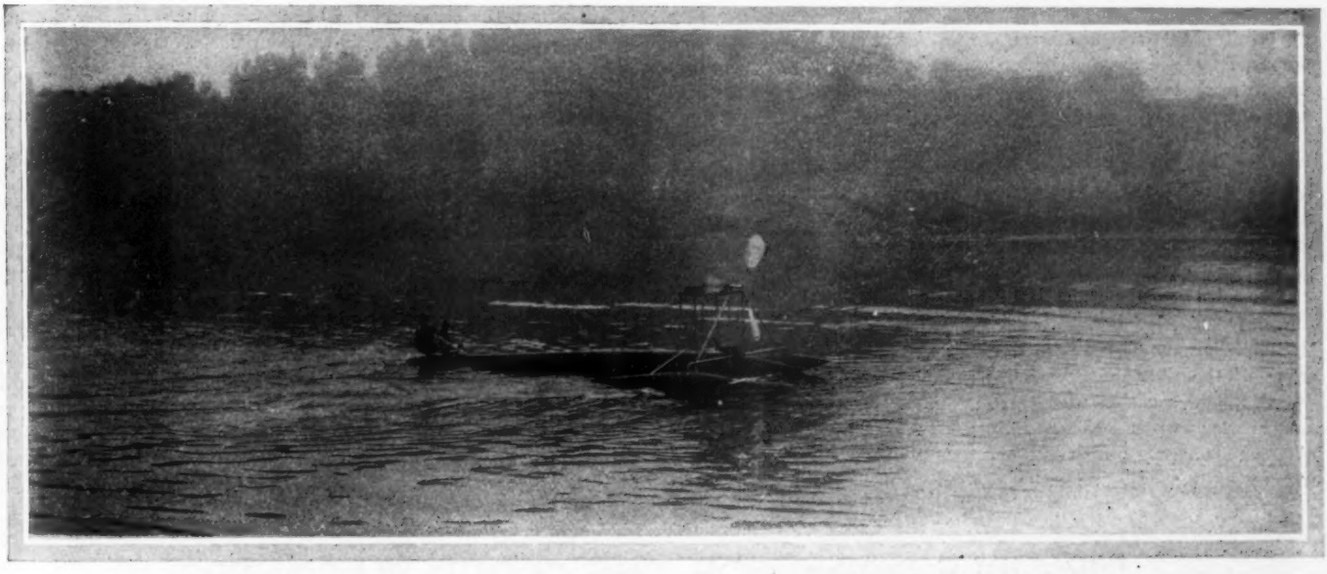
The Aero Club of Great Britain has selected Griffith Brewer and Claud Brabazon, with the balloon *Lotus II.*, of 2,150 cubic meters, as their team. The balloon used is the one piloted by Santos-Dumont in last year's race, and has since been revarnished and repaired. At that time it was fitted with a small engine driving a propeller to assist it in rising and so economize ballast.

France has Alfred Leblanc and M. Mix, and René Gasnier and Charles Levée, using the balloons *Isle de France* and *Anjou*. The Frenchmen have all had long experience in the aeronautical world and are looked upon as formidable competitors. Germany's team consists of Oscar Erbsloh in the *Pommern*, of 2,200 cubic meters; Captain Hugo von Abercron and Hans Hiedemann in the *Dusseldorf*, of 2,250 cubic meters, and Paul Meckel in the *Tschudi*, of 1,300 cubic meters, the smallest of the fleet.

Despite the smaller number of contestants it is expected that the second race will equal the first in popular and sporting interests, St. Louis having special advantages as starting point on account of the opportunities it offers for long voyages in any direction. Ordinarily the wind at this time of the year blows from the southwest, so that the balloons would be carried in a northeasterly to easterly direction, probably passing over the Great Lakes and descending in distant parts of Canada. It is confidently expected that the world's long distance record of 1,203 miles from Paris to Korostychew, Russia, established by Comte de La Vaulx in 1900, will be eclipsed.

Extensive preparations have been made by the Aero Club of America for the starting of the competitors at St. Louis. The gas supply is declared to be excellent, arrangements have been made by which the balloons can be started at intervals of five minutes and the use of troops has been granted to protect the enclosure. Each contestant will carry with him a delicate and accurately-made barometer, capable of recording every movement of the balloon. These will be sealed in such a way that it will be impossible to tamper with them, the reason for this being to prevent any competitor coming to earth and continuing his journey later. Conditions of the race are that the winner shall be the one making the longest flight without coming to ground.

In addition to the Gordon Bennett trophy to be held by the winner for one year, a prize of $2,500 in cash is offered to the most successful pilot; the second man will draw $1,000; third place, $750; fourth place, $500; and fifth place, $250.



"No. 18," SANTOS-DUMONT'S MILE-A-MINUTE HYDROPLANE, UNDERGOING TESTS ON SEINE PRIOR TO FITTING ENGINES.

SANTOS-DUMONT'S MILE-A-MINUTE CRAFT

PARIS, Oct. 7.—Santos-Dumont's mile-a-minute craft has been baptized. News of its first dip in the Seine having been well announced in automobile and aeronautic circles, a big crowd invaded Neuilly in expectation of interesting developments. They were somewhat disappointed, for the first test was merely a stability trial, the hydroplane being in the tow of Vedrine's fast motor boat *Lorraine*, and without its motor or its pilot. As the workmen were placing the light shell in the water one of the small cigar-shaped floats struck the sharp pointed end of a stake and collapsed like a pneumatic tire. Half an hour later

a patch had been placed on the rubber cover, Santos-Dumont had inflated the cover with his mouth, no pump being handy, and the hydroplane was floating lightly on the placid Seine. A rope from the framework of the hydroplane was passed up to the *Lorraine,* a turn of the cranking handle given and the 100-horsepower craft moved down stream with the light hull in tow. Its stability seemed to be perfect, and as soon as a speed of 20 miles an hour was attained the three cigars rose completely out of the water, allowing the apparatus to glide.

Santos-Dumont took his place on the bicycle saddle at the stern of the long cigar on the second day, grasped the automobile steering wheel and gave orders to the crew of the *Lorraine* to go ahead. Despite the extra weight the hydroplane behaved well, rising out of the water as soon as a little speed was attained and glided over the surface with but a slight ripple in its wake. The three-bladed propeller at the forward end of the craft was in position, but the 120-horsepower Antoinette motor had not been fitted. These initial experiments having been satisfactory, the engine will be placed at once and tests of *No. 18* under its own power made in a very short time.

WINNING THE FRENCH BALLOON TROPHY

PARIS, Oct. 7.—At noon a warm autumn sun illuminated the gilded gates of the Tuileries Gardens, cast shadows around the nineteen swelling gas bags encircling the pond where gold-fish make their home, and called out Parisians in thousands to watch the start of the third balloon race for the Grand Prix.

At 3 o'clock menacing black clouds rolled up from behind the Louvre, hesitated an instant, then descended in a deluge. As if by enchantment one hundred and fifty thousand umbrellas appeared on the Place de la Concorde and in the Garden; fifty thousand unfortunates uttered an exclamation of disgust, then prepared to take their wetting stoically. Among the competitors an eye was cast at the bags of sand and rapid calculations made on the number which must be sacrificed at the start.

Since dawn the company of military aeronauts and officials of the Aero Club of France had worked at the installation with such success that promptly at 4:30—the advertised hour—the first balloon drifted slowly upwards and was followed at regular intervals of four minutes by another aerial mass. Automobiles never answered the call of the starter with greater punctuality.

Owing to some stupidity on the part of the railroad authorities the only Italian balloon went astray; consequently none but Frenchmen competed for their national trophy, among them being some of the most experienced sky pilots the country has produced. *Aero Club II* was dragged up to the starting line with Lucien Lemaire in charge, his wife as assistant, and a couple of male helpers. But it was too much of a load for the 1,500 meters of gas and one male had to climb out of the wicker basket, Madame remaining and smiling agreeably to the cheers which greeted her departure. The *Abeille* took two ladies in its somewhat restricted body; the *Escapade,* with Leon Barthou, brother of the Minister of Public Works, at the helm, had Madame Lafaurie as member of the crew.

Although the rainstorm passed off there was a lot of work to be done on the sacks of ballast. Some of the idlers on the Place de la Concorde objected to the sand coming down, and ladies within the enclosure shrieked as an unopened bag dropped into a pool of dirty water at their side.

At 6 o'clock nineteen balloons were in the air, nineteen drag ropes were being prepared to be cast out, and the entire aerial army had cast a look at the life belts—for the wind was driving the entire battalion seawards.

M. Delobel, piloting the *Nord,* secured the third year's aeronautical Grand Prix by a descent in the North Sea, twenty-eight miles from Ostend, and about one hundred and seventy miles from Paris. Almost before the crew could obtain a knowledge of their position, for the *Nord* had been floating far above the clouds, the balloon was traveling at twelve miles an hour over the sea. Three steamers were in sight, a rapid descent was made, the guide road was seized, the crew dragged on board, and the *Nord,* relieved of its weight, sped skywards to descend later in England. Delobel had won the Grand Prix with an ample margin. Eight others dropped down on the coast line between Calais and Dunkerque, and the rest, after being drenched to the skin, slid down to earth with shorter mileages.

DIRIGIBLE DOINGS OF THE CLOUD WAGONERS

ANOTHER UNIT FOR FRENCH DIRIGIBLE FLEET.

PARIS, Oct. 7.—Another dirigible balloon, to exceed the *Patrie* and the *Ville de Paris* in size, is announced for next spring. This powerful addition to the French fleet of dirigibles will be known as the *Bayard-Clément,* all expense in connection with its construction being borne by M. Gustave Clément, the well-known automobile constructor. M. Capazza, one of the most experienced of European aeronauts, has been charged to design and construct the new balloon, and has taken up temporary headquarters at the Bayard-Clément factory, where a model has been made and preliminary work undertaken. As the balloon will have a capacity of 5,000 meters, actual construction cannot begin until the special shed is ready. A couple of Bayard-Clément motors taken from racing machines will be used.

AIRSHIP COMPANY INCORPORATED IN NEW YORK.

The American Airship and Balloon Incorporation has recently been incorporated under the laws of New York with a capital of $200,000. Israel Ludlow, director of aeronautics at the Jamestown exhibition, declares that a large part of the capital has been paid in and that several members of the Aero Club of America have taken stock. Charles A. Strobel is president and M. R. Nock and J. C. Mars are directors.

JONES AEROPLANE MAKES THREE FLIGHTS.

BATH, N. Y., Oct. 14.—Three successful flights, one of 200 feet, one of 600 feet and another of 1,500 feet, have been made by the heavier-than-air flying machine, designed and constructed by Charles Oliver Jones, a member of the Aero Club of America. The aeroplane, which weighs 375 pounds, with its seven-horse-power Curtis motor and one operator on board, was started from a special launching car designed to give it the necessary momentum. The flights were made at a height of about twenty-five feet from the ground, and at the end of each the machine was brought to earth without any difficulty or any damage to the structure. G. H. Curtis was in charge of the operations and directed the ground work.

GROWTH OF AERO SOCIETIES AND JOURNALS.

There are now thirty-nine aeronautical societies or clubs in various parts of the world, four of them being in America. There are fourteen aeronautical journals in existence, six being published in France, two in England, and one each in Germany, Austria, Belgium, Italy, Russia and Switzerland. The American addition to the list appeared last July under the title *American Magazine of Aeronautics.* It is edited by Ernest La Rue Jones and published at 142 West Sixty-fifth street, New York City.

"Trapping" Near New York City

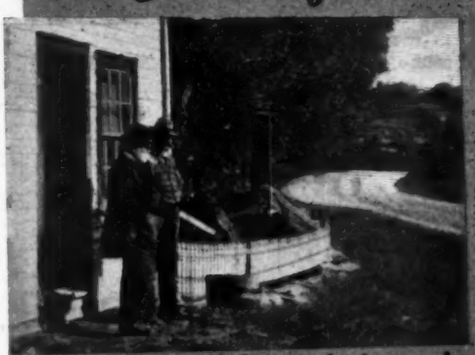
by One Tourist

CONDITIONS which have prevailed adjacent to the metropolitan district during the past summer and early fall in the matter of overzealous country constables have well nigh taken the pleasure and enjoyment out of automobiling throughout this territory. It is reported from some sections that no more "trapping" will be done this season, and it would be glad tidings to all users of cars if this should be the case in all directions out of town. These fine autumn days when a man takes his family out for a day's spin to enjoy the gorgeous foliage, it certainly would enhance the pleasure to feel that security which is essential to a thorough enjoyment of an outing.

Unfortunately the average automobilist, though he be ever so careful of the safety of his passengers and considerate of fellow-users of the highway, is made to suffer for the sins of the very small percentage of drivers who have the speed mania in aggravated form. In ninety-nine cases out of a hundred the reckless driver gets away and the careful driver is caught to expiate the sins of the former.

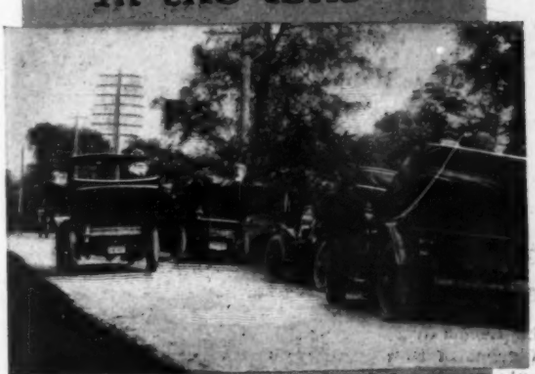
Take, for instance, the trap which has been in operation for the last four Sundays at Merritt's Corners, about two and a half miles above Briarcliff Manor on the State road to Lake Mahopac. This is a favorite Sunday run for New Yorkers. On approaching Echo Lake, there are a few moderate curves; these are posted with danger signs warning one to slow down to four miles an hour. A short distance beyond Echo Lake is Merritt's Corners, where the State road crosses an infrequently used dirt road. An old stone taven, nearly a hundred years old, is on one corner, a barn on the other. Here is where the most atrocious trap in the history of this summer's many aggravated cases is located. The first two Sundays, the speed allowed was only four miles an hour, though there is no curve at this exact point and the law demands that speed only on sharp curves. Almost everyone was halted and brought before a justice, who held court under a convenient tree by the roadside. Everyone was "soaked" $5, an ingenious amount, as the "justice was perfectly aware that no one would bother about fighting the case and would rather pay such a small fine. Seeing how easy it was to work this game, the fine was raised to $10 on the third Sunday, but in return the limit at the crossroads was also raised to ten miles an hour, and court was held in a barn instead of in the open. Now this would not seem so very unreasonable, even if a demand for such a reduced speed was justifiable, but the trap measures only 132 feet in length and north bound travel is down grade, besides being laid out just around a slight curve. Nine seconds for the passing through this distance equals ten miles an hour. The length of the trap, the shortest on record, is equal to the length of ten or twelve cars put end to end. Naturally it makes

Merry Villagers



"Judge" waiting!

In the Toils



Line of Victims

A SCENE IN THE LAKE MAHOPAC COUNTRY.

a considerable difference, in such a short distance, what part of the car, the front or rear, is timed in passing the marks at each end of the trap; also the giving of the signals take up time which, though probably very short in itself, may make the distance actually timed many feet less than the length of the trap. Nevertheless, tourists were held up for passing the trap in 8 1-2, 8, and 7 seconds. The arresting constable was not sworn, but merely stated that the stop watch showed so many seconds and no defense was valid, though in one instance, a lame man, using two canes, swore that a certain car kept with him through the trap.

The lack of necessity for this trap and the high-handed treatment received finally drove two arrested autoists to refuse to pay the fine and to demand trial. Cash bail was furnished and the cases were set for Monday last. Although the Justice acted in the dual capacity of attorney for the people and judge of the court, he was obliged to decide the case against himself. The evidence showed that the trap was inaccurately measured, the time inaccurately taken, that the constable received a fee for each arrest in addition to his salary, that the course laid out was not within an incorporated village, that the houses were more than 100 feet apart, and that the measured trap was not on a curve.

GERMANY WILL PROPOSE DRASTIC SPEED LAW.

BERLIN, Oct. 12.—Members of the special automobile commission representing various Government departments intend to propose radical measures to eliminate speed-crazed automobilists. Among the recommendations which they will bring up at the conference to meet in Berlin at the end of the month is one for the use of a special speedometer, which will register speed attained by hour and for intermediate periods, in such conspicuous figures that they can be read by persons outside the car. At night the figures will be sufficiently illuminated to be read on the street. The apparatus, which, in the opinion of the commission, should be compulsory on all automobiles, shall be so constructed and arranged that it cannot be tampered with. By its use it will be possible to ascertain at what speed a car has been traveling at any time during the preceding twenty-four hours.

LATEST NEWS CONCERNING "THAT STOCK CAR RACE"

From the New York "Herald," October 12.

When the demand of the American industry for a stock car race became so pronounced early in the fall as to be unmistakable to every automobilist and to every automobile organization except the American Automobile Association, the Supervisors of Nassau County, L. I., came to the rescue with an offer of a circuit for the proposed contest.

Failing a movement on the part of the A. A. A., a special organization was called into existence for the promotion of the race. Then unexpectedly some mysterious influence was brought to bear upon the Nassau Supervisors, and the use of a circuit that at first had been invited was peremptorily declined.

That action so angered manufacturers, dealers and others interested in the proposed contest that they immediately began to look elsewhere for an available course for an international stock car race in the spring. T. Francis Moore, who had been prominent in the Long Island negotiations, was commissioned to search for a suitable circuit, with the one injunction that it must not be on Long Island.

As the result of that search a committee representing the metropolitan automobile trade yesterday drove over and practically agreed upon a circuit in Westchester county. That circuit, the exact location of which is withheld by request, is forty-two miles in length, has fifteen turns, a majority of which are so gradual that they may be taken at thirty miles per hour, and only one steep hill. Of this route thirty-eight miles are of excellent macadam, and six miles are of fair dirt. Included in this stretch is one mile of poor road that will need to be improved. The circuit passes through two small towns where it would be necessary to establish controls.

The general scheme of the race, which, it is said, has met with the approval of representative manufacturers, is to hold a contest of five hundred miles on a single day, probably on April 20, open only to stock chassis as regularly built and catalogued.

For this race a trophy of considerable value has been offered by a prominent sportsman. An organization, of which the Metropolitan Automobile Association is to be the nucleus, is to be perfected for the promotion of the event. Any receipts over and above the cost of promotion will be given to a charity in Westchester county.

The actual control of the race is to be vested in a committee, of which Robert Lee Morrell, former chairman of the Vanderbilt Cup Commission, will be the organizer and chief. Job E. Hedges, counsel for the American Motor Car Manufacturers' Association, will head the Legislative Committee. To John McCullough, formerly chief of police of New York, is to be entrusted the arduous duty of properly guarding the course during the race.

Prominent officials of Westchester county are said to favor the scheme, and the residents are eager for the race.

From the New York "Times," October 13.

The latest scheme for promoting an automobile road race, although heralded with much enthusiasm by some of the charitably inclined organizers who profess a deep anxiety to come to the rescue of the American industry by offering a real test for stock cars, is likely to come to a more ignominious end than was the fate of the recent attempt to hold such an event on Long Island. Ever since the failure to secure the race for Long Island roads efforts have been made to obtain a suitable course in either Westchester or Dutchess counties. In these schemes Thomas F. Moore has been the prime mover, and in view of the fact that he took an important part in the Long Island race efforts as an officer of the Metropolitan Automobile Association, which made a request for the use of the roads, the impression has become more or less general that this organization was still working to obtain a suitable course for the race next spring. It was ascertained yesterday that no official recognition to these latest road-racing schemes have been given by the Metropolitan Association.

Mr. Moore publicly announced several days ago a vague plan of a proposed race, stating at the same time that Robert Lee Morrell and Job E. Hedges had consented to assume important duties toward making the event a success. Moore has quite a knack of raising a "breeze" with his announcements, and when this last one came only a few of the misguided gave it serious attention.

Had there been the slightest indication that any representative manufacturers were directly interested in the race or that any really serious efforts were being put forth by even a small coterie of automobilists it would have been possible to have given accurate information concerning the course several days ago. It can be stated, however, for the information of those who may have imagined that there was the slightest possibility at the present time for securing such an event that the proposed course covered a circuit of nearly forty miles, starting at Briarcliff Manor. It had also been announced that D. B. Plummer, proprietor of Briarcliff Lodge, was to offer the trophy costing several thousand dollars.

"I never made any offer to put up the cup," he said. "Personally, I have very little faith in its success, and I don't believe the race will ever be held in Westchester county."

In addition to Mr. Plummer, the heads of a large wine importing firm and a whisky firm are also said to have promised to offer cups.

From the New York "Times," October 15.

Unanimous and hearty sentiment for a stock car road race was expressed yesterday at the meeting held in the Hotel Astor of representatives of about twenty automobile manufacturers, including both Amrican and foreign machines. As a result of the meeting and the general interest manifested so unmistakably in the project, the possibilities for successfully holding such an event may be said to have taken a long step forward.

DECORATIVE SCHEME THAT TRANSFORMS GRAND CENTRAL PALACE INTO A DREAM OF ART.

STUDENTS of automobile building, as well as intending purchasers, have watched with interest the phenomenal growth of the American Motor Car Manufacturers' Association, the organization sometimes called the "Independents," which from the fifteen members of three years ago is now at the front of all similar trade associations with a membership of fifty-one of America's leading automobile manufacturers. Interest in the work of the association is particularly keen at this time owing to its participation with the Automobile Club of America in the Eighth Annual Automobile Show, which opens in the Grand Central Palace October 24, and at which show the members occupy almost all of the main floor space.

As far as can be ascertained from reports received at this time, it is estimated that the members of the A. M. C. M. A. will in 1908 make about 37,000 cars, or more than 60 per cent. of America's automobile production, with a selling valuation of something over $55,000,000. The spirit of the Association is to further the interest of the sport of automobiling; increase the use of automobiles for commercial, professional, and pleasure purposes, and assist the common interests of its customers as well as its members. The makers holding membership conduct their business independently of each other and are not restricted as to the volume of their business; the price at which they sell their cars, or in any other way.

The one great aim of the A. M. C. M. A. is to bring about benefits and offer guidance to its members that they may turn out the best cars at the lowest possible cost, with the ultimate object of being able to supply these cars to the general public at prices within reason and yet permit of a fair margin of profit. In the manufacture of automobiles, safety and comfort are the first essentials, with the price the next consideration. When all this can be combined so that the maximum of quality can be given for the minimum of price, the trading is certain to be satisfactory to buyer and seller.

The aims and purposes of the American Motor Car Manufacturers' Association are to arrange for suitable exhibitions of its members products; to conduct race meets; to increase the interest in the purchase and use of motor cars; to secure desirable rates of transportation and shipment for machines made by its members, and for people who buy them; to furnish agents full information regarding trade in motor cars, the new forms of construction, the merit of the car itself and the developments in general; to promote public interest in good roads in every way possible and to oppose inimical legislation. Also to further the exchange of scientific information by the constructing engineers of the various companies with a view of improving the manufacture and standardization of motor cars.

Just now the greatest work of the Association is in connection with the show at Grand Central Palace, for, besides having the preferred space, experts are engaged to describe their products in detail to the public; books are distributed telling of the work of the Association and why buyers should purchase the cars made by its members and a number of other similar conveniences for the visitor.

Not the least important work undertaken by the Association this year was that of securing the use of docks for gasoline vehicles. A member of its Freight and Transportation Committee appeared before about seventy of the freight agents, and subsequently secured the endorsement of the insurance companies and a record of their work, so that gasoline vehicles are now allowed on more than half the docks of New York, with the others fast coming into line. This has been of tremendous benefit to those who manufacture commercial vehicles, and who up to this time have been handicapped in selling to business concerns that use the docks.

The foreign representative, A. E. Schwartz, has this year been of decided benefit to the members, bringing over in July much valuable information regarding foreign trade, besides closing the agencies for a number of important lines including axles and bearings. The compilation of automobile agents and dealers, has been another good work of the A. M. C. M. A. Another important matter which has received attention, is a uniform guarantee that is liberal to the buyer and fair to the maker. Advertising advice and plans; work for a national law providing for a single license number good in every State, and of course, the perennial question of good roads, have all supplied work for committees well versed in those subjects. Much hostile legislation has been opposed this year, including some proposed bills, which, if passed, would have seriously decreased interest in automobiling and have proved a decided setback.

One of the greatest works of the association is the publicity department under the management of Leon Myron Bradley. This department disseminates authentic information to the daily newspapers and trade publications, furnishing them with photographs of new models, mechanical specifications of the members' cars, prepares timely articles on important subjects, such as legislation, good roads, etc., and prepares exclusive stories for the various periodicals upon request. During the past summer the work of the publicity department has been broadened to a large extent and the results actually accomplished for members have been commendable.

The matter of liability insurance, freight rates, larger and more freight cars, and similar work, has been the subject of much work on the part of the association.

Importations have fallen away so much during the past year, that this did not take up as much time as usual, but it has been given the thought it deserved, and members have been informed of the cars brought from the other side.

Efforts to form combinations in various lines that might result in advancing the price of automobiles, have been bitterly opposed. The formation of the Ajax-Grieb Rubber Company; the opposition to the proposed pool of steering-wheel makers and of the combination of steel frame makers, have all worked out well for the members and for the buyers of cars. The tips that the association has given its members on the supply market have been extremely valuable, particularly the one on aluminum, which

went up almost twenty-five per cent., after all the members had warning to buy when the market was low.

Although there are other things that the association is doing quietly and industriously, those mentioned will give a fair idea of its work.

The chairman of the Committee of Management for two years was James Couzens, of the Ford Company. The present Committee of Management consists of Benjamin Briscoe, chairman; R. E. Olds, vice-chairman; H. O. Smith, treasurer; William Mitchell Lewis, secretary; Charles Lewis, W. H. VanDervoort, Charles E. Duryea, W. C. Marmon, Barney Everitt, and Alfred Reeves, general manager.

Members American Motor Car Manufacturers' Ass'n.

Abendroth & Root Mfg. Co.,	Newburgh, N. Y.,	Frontenac
Acme Motor Car Co.,	Reading, Pa.,	Acme
American Machine Mfg. Co.,	Detroit, Mich.,	Commerce
American Motor Car Co.,	Indianapolis, Ind.,	American
Austin Automobile Co.,	Grand Rapids, Mich.,	Austin
Atlas Motor Car Co.,	Springfield, Mass.,	Atlas
Bartholomew Co., The,	Peoria, Ill.,	Glide
B. L. M. Motor Car Co.,	Brooklyn, N. Y.,	B. L. M.
Brush Runabout Co.,	Detroit, Mich.,	Brush
Buckeye Mfg. Co.,	Anderson, Ind.,	Lambert
Chadwick Engineering Wks.,	Philadelphia, Pa.,	Chadwick
Continental Auto Mfg. Co.,	New Haven, Conn.,	Continental
Crawford Automobile Co.,	Hagerstown, Md.,	Crawford
Dayton Motor Car Co.,	Dayton, O.,	Stoddard-Dayton
DeLuxe Motor Car Co.,	Detroit, Mich.,	De Luxe
Dolson Automobile Co.,	Charlotte, Mich.,	Dolson
Dragon Automobile Co.,	Philadelphia, Pa.,	Dragon
Dorris Motor Car Co.,	St. Louis, Mo.,	Dorris
Evansville Automobile Co.,	Evansville, Ind.,	Simplicity
Ford Motor Company,	Detroit, Mich.,	Ford
Gaeth Automobile Works,	Cleveland, O.,	Gaeth
Gearless Transmission Co.,	Rochester, N. Y.,	Gearless
Imperial Motor Car Co.,	Williamsport, Pa.,	Imperial
Jackson Automobile Co.,	Jackson, Mich.,	Jackson
Kingston Motor Car Co.,	Kingston, N. Y.,	A.-K.
Mack Bros. Motor Car Co.,	Allentown, Pa.,	Manhattan
Marion Motor Car Co.,	Indianapolis, Ind.,	Marion
Maxwell-Briscoe Motor Co.,	Tarrytown, N. Y.,	Maxwell
Mitchell Motor Car Co.,	Racine, Wis.,	Mitchell
Moline Automobile Co.,	East Moline, Ill.,	Moline
Moon Motor Car Co.,	St. Louis, Mo.,	Moon
Mora Motor Car Co.,	Rochester, N. Y.,	Mora
Motorcar Co.,	Detroit, Mich.,	Cartercar
National Motor Vehicle Co.,	Indianapolis, Ind.,	National
Nordyke & Marmon Co.,	Indianapolis, Ind.,	Marmon
Overland Auto Co.,	Indianapolis, Ind.,	Overland
Penna. Auto-Motor Co.,	Bryn Mawr, Pa.,	Pennsylvania
Pierce Engine Co.,	Racine, Wis.,	Pierce-Racine
Premier Motor Mfg. Co.,	Indianapolis, Ind.,	Premier
Pullman Motor Car Co.,	Chicago, Ill.,	Pullman
Rapid Motor Vehicle Co.,	Pontiac, Mich.,	Rapid
Reliance Motor Car Co.,	Detroit, Mich.,	Reliance
Reo Motor Car Co.,	Lansing, Mich.,	Reo
Simplex Motor Car Co.,	Mishawaka, Ind.,	American Simplex
St. Louis Car Co. (Auto Dept.),	St. Louis, Mo.,	American Mors
Wayne Automobile Co.,	Detroit, Mich.,	Wayne
Welch Motor Car Co.,	Pontiac, Mich.,	Welch
York Motor Car Co.,	York, Pa.,	York-Pullman

BOSTON SHOW DATES NOT DISTURBED.

BOSTON, Oct. 14.—Manager Chester I. Campbell, of the Boston Automobile Show, will this week issue the applications for space at the show to be held in Mechanics Building next March. Owing to the advancement of the date of the New York shows there has been considerable discussion here of the advisability of putting the Boston show ahead a month or more. The officers of the Boston Automobile Dealers' Association, however, have refused to change the date because they believe that for a retail business, such as is conducted at the Boston show, March is a better time than either January or February, and that coming just before the riding season the show in March creates more enthusiasm than it would at an earlier date.

In the show next spring nothing but automobiles and their accessories will be included, the management having been obliged to secure more room by excluding the motor boats.

PROGRAM OF EVENTS DURING PALACE SHOW.

Thursday, Oct. 24, P.M.: Private view of exhibition.
Friday, Oct. 25, P.M.: Merchants' night.
Saturday, Oct. 26, P.M.: New York City officials' night.
Saturday, Oct. 26, P.M.: Smoker, clubhouse of Automobile Club of America.
Sunday, Oct. 27, All Day: Open house at Automobile Club of America.
Monday, Oct. 28, P.M.: Engineers' night.
Tuesday, Oct. 29, 1 P.M.; Second annual show luncheon of the American Motor Car Manufacturers' Association at Hotel Manhattan.
Tuesday, Oct. 29: Society night. Admission $1 instead of 50 cents.
Wednesday, Oct. 30: Meeting A. M. C. M. A. Committee of Management.
Wednesday, Oct. 30: Meeting A. C. A. Board of Governors.
Wednesday, Oct. 30: Military night.

A. A. A. Meetings During the Shows.

Wednesday, Oct. 30, 10 A.M.: Conference of representatives of A. A. A., N. A. A. M., A. L. A. M., A. M. C. M. A., and I. A. S., for the purpose of considering the advisability of automobile racing upon one-mile or less circular tracks. No. 437 Fifth avenue.
Wednesday, October 30, 4 P.M.: Conference of representatives of A. A. A., N. A. A. M., A. L. A. M., and A. M. C. M. A., discussion of plans for the general good of automobiling. No. 437 Fifth avenue.
Thursday, Oct. 31, 10:30 A.M.: Meeting of Executive Committee A. A. A. Board of Directors.
Thursday, Oct. 31, P.M.: Meeting of A. A. A. Finance Committee, subject to call of Chairman George E. Farrington. No. 437 Fifth avenue.
Thursday, Oct. 31, 3 P.M.: Open A. A. A. meeting for members, Convention Hall, Grand Central Palace.

Wednesday, Nov. 6, 2 P.M.: Meeting of A. A. A. stockholders at 525 Main street, East Orange, N. J.
Thursday, Nov. 7, 10 A.M.: Meeting of Board of Directors, A. A. A., 437 Fifth avenue.
Thursday, Nov. 7, 3 P.M.: Open meeting for A. A. A. members, 437 Fifth avenue.

CHICAGO'S COMMERCIAL VEHICLE SHOW.

CHICAGO, Oct. 14.—When the First Annual Commercial Vehicle Exhibit, in conjunction with the Seventh Annual Show at Chicago, was announced, it was the opinion of the management and of the directors of the National Association of Automobile Manufacturers, Inc., that if twenty exhibitors could be obtained a good start would have been made and that the times when commercial cars had attained such importance as to warrant a separate exhibition would have been suitably marked. The show is still nearly two months off, but with the closing of last week there were twenty-four exhibitors on the list and at least eight others in correspondence with the management. It is reasonably certain that there will be at least thirty exhibits of cars, fire apparatus and farm implements.

It is intended that the admission shall be largely by invitation. Each exhibitor will be supplied 1,000 invitation cards, to be mailed to interested persons. The exhibitors of cars, up to Saturday last, were the Studebaker, Franklin, Buckeye, Rapid, White, General Vehicle, Commercial Motor Truck, Logan, Reliance, Lear, Pope, Mitchell, Knox, Meiselbach, Pittsburgh Motor Vehicle, Johnson Service, Advance Mfg. and Couple-Gear companies, Gifford Pettit Mfg. Co., and Sayers & Scoville.

DETROIT'S FEBRUARY AUTOMOBILE SHOW.

DETROIT, MICH., Oct. 14.—The Tri-State Automobile & Sporting Goods Association have obtained a sanction from the Motor & Accessory Manufacturers, Inc., and will hold their seventh annual show in the Detroit Light Guard Armory the week of February 10 to 15, inclusive, 1908. Automobiles, commercial cars, accessories and motor cycles will be shown, and every effort is to be put forth to make the show one of the most representative of dealers' exhibitions in the country as befits Detroit's standing.

SOME MICRO-STRUCTURAL CONSIDERATIONS*

By JOHN MAGEE ELLSWORTH and THOMAS J. FAY, E.E., NEW YORK.

TIME was when metal was judged almost exclusively by the appearance of the fracture, but the fracture was viewed "a la nature" by the naked eye, and it is not to be wondered at if, on occasions, judgment failed. As the art advanced, and the needs of the occasion became more exacting, other methods were devised and introduced, all with the idea of realizing a greater degree of accuracy and in so far as possible to eliminate errors. But in the course of time it became more and more apparent that the first idea was right, in principle at any rate, and in these days to go back to the appearance of the fracture is the natural sequence.

Instead, however, of viewing the fracture in the old crude way, it is now the practice to make micro-photographs of polished and etched sections, and by magnifying the section even as high as two thousand diameters, bring out the structure so boldly as to enable one to view its details and to decide as to the condition obtaining with a marked degree of accuracy. True, micro-photographs are not new, nor are they of recent introduction, but they were mostly the product of advanced laboratories and were rarely ever referred to in commercial zones of activity. It will be understood, then, that the authors of this paper make no claims tending to advocate a new principle, but desire only to point out that what was once an academic matter is now verging into common practice, amounting to no more than a refinement of the foundryman's practice of old, in which he graded pig in accord with its fracture, and it is remarkable indeed how well the task was performed.

Mal-conditions Readily Revealed by Micro-photograph.

Just why micro-photographs will disclose defects not likely to be exposed to view by any other process is quite easy to set down, if only the matter is afforded a little consideration. For illustration, an inferior product, manipulated by an expert, will develop physical properties of the conventional sort, quite up to average expectations for the given grade of material. On the other hand, this inferior product, with its best foot forward, is still the same inferior product, and in shock service or vibratory testing machines would expose the other foot. A micro-photograph would disclose the mal-condition directly and enable one to know without any further trouble just what might stand in the way of the success of a venture using such a product.

Take for illustration a piece of steel, disclosing "oxides" in the micro-structure, say at 350 magnifications, such a product can never be made safe for any exacting service, even though the steel might be so manipulated as to render it fit, from the point of view of a set of specifications; moreover, a chemical analysis might be quite up to the expectations in every way. It would seem, then, as if the micro-photograph, as a modern sequence of the old "fracture method," is as essential to success under present exacting conditions as the fracture viewing process of grading pig was in the days of old, and in view of the wide use to which "alloy steel" is now being put the micro-photograph takes on an especial significance at the present time, because micro-photographs of alloy steel are not easily obtainable and but little understood, even by advanced students who have been offered an opportunity to go into the matter the greatest possible length.

As regards micro-photographs of carbon steel and gray cast-iron, enough of them have been published to make it unnecessary to go further into this phase of the question at the present time, and the authors will confine themselves to alloy steel products involving chrome nickel steel and vanadium steel for the most part. In each case the micro-photograph will include chemical analysis and physical tests of the steel exposed to view, and in this way it is hoped to fix upon a standard of comparison, such as may serve a very useful purpose in the long run, in view of the fact that these micro-photographs are of steel of the finest qualities for automobile work.

In this paper the micro-photographs offered are as follows:*

Fig.	Subject.	Magnifications.
14.	Bischoff, chrome nickel steel.....	350
15.	Bischoff, chrome nickel steel.....	580

In these illustrations are represented practically all the conditions of the micro-structure of alloy steel, such as can be recommended in automobile work. Some of the specimens show the finest micro-structure possible to obtain, whilst one, Fig. 14, shows the structure of a purposedly abused product. For each specimen the test record gives all obtainable information, so that a further discussion in the text will be of no avail.

In proceeding, then, this paper will set down a résumé of the question of the constituents of steel as developed in the micro-structure and otherwise, whereas ordinarily carbon in steel is referred to as graphitic or combined, as the case may be.

To begin with, it is the carbon that is most likely to influence the structure, although the metalloids and the alloys are largely responsible for the selective carbon condition. As regards graphite, it will suffice to point out that its presence as an excess can only be assured in a product so high in total carbon that all may not combine. Graphite, then, may be regarded as

CHEMICAL COMPOSITION			
CARBON	TOTAL		
	COMBINED		
	GRAPHITE		
	FERRITE		
	PEARLITE		
	CEMENTITE		
Cr.		Ni.	
V.		W.	
Mn.		Si.	
Al.		Cu.	
S.		P.	
Sn.		Zn.	
Pb.		Sb.	
As.			
PHYSICAL PROPERTIES			
T.S. / E.L.	LBS. PER SQUARE INCH		
EX. / CO.	PER CENT.		
PROOF	DIAM.		
	LENGTH "		
FRACTURE			
RATING	U.		
	H.		
TREATMENT	TREATED		

SUBJECT: CHROME NICKEL STEEL
NUMBER: CLXXXXI. MARK: H-5
FROM: FELIX BISCHOFF DUISBURG RHINE. NEW YORK, 5-10-07
SPECIAL HARD VARIETY SHOWING WRONG TREATMENT.
THIS IS A GOOD EXAMPLE OF A TREATMENT THAT CAN NOT BE CORRECTED BY ANY SUBSEQUENT PROCESS.
THE OXIDE FORMATION SHOWS WHITE, AND STEEL BURNT IS NOT RESPONSIBLE
MAGNIFIED 350 DIAM

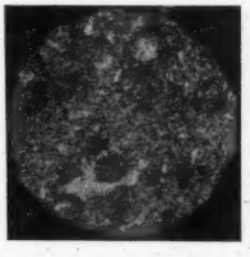


FIG. 14.—Bischoff chrome nickel steel, magnified 350 times.

*Extract from paper read before Society of Automobile Engineers, Buffalo, N. Y., July, 1907.

*Eighteen micro-photographs with their corresponding test records accompanied the paper, but only two of the most representative are reproduced here, owing to lack of space.

a regular component in gray cast iron or in white iron, because these products are all so high in total carbon that excess graphite is assured. In general it may be possible to consider that up to 2 per cent. total carbon, steel is the normal product, and graphite is not as a rule likely to abound. Above a total of 2 per cent. carbon graphite will be an excess, and in the product holding graphite the proportion of combined carbon can be very low, say 0.05 per cent., or very high, depending upon the proportioning of the metalloids and the conditions of manufacture. The total carbon rarely exceeds 4.50 per cent. at all events, and the exact carbon content is also dependent upon the ratio of metalloids and the process.

Considering steel free of graphite, it is fair to say the combined carbon in the products of commerce rarely exceeds 1.50 per cent., and in this product *in its normal state* the carbon condition is that, holding substantially fixed proportions of ferrite, cementite and pearlite, depending upon the total carbon, all combined.

It has been fairly well decided that with a total carbon of 0.90 per cent. normal steel consists of 100 per cent. pearlite, and for any "hypo-eutectic" condition in which the total carbon is less than 0.90 per cent. the whole carbon will be divided into pearlite in proportional relations and *excess ferrite, to make up the difference;* i.e.

$$\therefore 90 : a :: 100 : b$$

in which:

a = the points of carbon present,
b = percentage of pearlite.

Hence for illustration it would be possible to say for a 0.45 per cent. carbon

$$\therefore 90 : 45 :: 100 : 50$$

hence the pearlite ratio would be 50 per cent. and

$$100 - 50 = 50 \text{ per cent.}$$

ferrite difference, because ferrite is the excess in hypo-eutectic steel *under normal conditions.*

If, however, the total carbon is all combined and exceeds 0.90 per cent., the excess over and above the pearlite ratio *will be cementite,* instead of ferrite; hence, knowing the total combined carbon, one may at once know how much should be excess ferrite or cementite, *if the steel is in the normal state,* since all the excess will be the one or the other, depending merely upon the question of whether or not the product is a hypo- or a hyper-eutectoid.

Normal and Abnormal Steels Specifically Considered.

Of course, a product to be *normally constituted* must be allowed to freeze from its molten condition to its solid, cold state, within what might well be called *normal time,* and unhampered by any adverse environment. It is not the purpose here to fix a time or settle upon the environment, but in general slowly cooled carbon steel satisfies the condition and results in the normal selective eutectoid agreeable to the total of the carbon, whatever it may be in point of magnitude.

Abnormal steel, then, is the sole product of any set of conditions that may bring about a variation from the normal selective process in freezing or in cooling from any point high enough in the scale of temperature to disturb the steel out of its normal state of repose, or to upset the condition of the carbon.

It is not necessary to raise steel to the melting point to bring about a change in the carbon condition, and heat treatment consists in elevating and lowering the temperature to and from various points and at various rates, for no other purpose than to upset the normal state of repose and fix other states, with a view to take advantage of the resultant properties. The danger lies in not being able to establish conditions affording advantageous results, for of all conditions possible to fix by heat treatment only a few of them are of known advantage.

The main question, then, is that involving the alloying elements, as chromium, nickel, tungsten and vanadium, etc.

The rôle they play is in fact the matter of most concern, and probably the question least likely to be explained sufficiently. In the main this matter can be treated in a way not differing in principle from the view taken of the simple compounds, since in the freezing process a eutectic is involved.

The freezing point of carbon steel depends, amongst other things, upon the carbon present and is influenced by the metalloids, but for a given percentage of carbon in steel the freezing point will again change if alloying elements are added, and if a compound product holding two or more alloying elements is considered, then the resultant freezing point will be something besides.

What would seem most to be desired would be a set of conditions, brought about by alloying, if necessary, that would tend to a uniform level of freezing for all the elements simultaneously from and at the same temperature. Then the resultant product would be uniform and would hold this uniformity for all time unless released by some process consistent with its natural characteristics. Vanadium, for illustration, seems to serve as a binder for the mass during the freezing process, and the result is a uniformity not so easily obtained in the absence of vanadium. Likewise, chromium, nickel, tungsten and other elements have their influences upon the temperatures of freezing and the selective process is influenced for good or evil, depending upon proportions and the process. Because these alloying elements do influence the selective process and the temperature of freezing, is not in itself a reason why the result may be good, and whilst vanadium, for illustration, is accredited with properties tending to abort segregation, even so, it is quite possible that the steel, although uniform, may not be *of even passing merit.* On the other hand, a perfectly uniform product has the intrinsic merit of being uniformly good or uniformly bad throughout, and that in itself is much to be desired, for then, upon devising a mixture and a process evolving good results they may be regarded as stable and can be duplicated at will.

CHEMICAL COMPOSITION				
CARBON	TOTAL	0.204		
	COMBINED	0.204		
	GRAPHITE			
	FERRITE			
	PEARLITE			
	CEMENTITE			
Cr.	1.69	Ni.	4.26	
V.		W.		
Mn.	0.18	Si.	0.221	
Al.		Cu.		
S.	0.006	P.	0.012	
Sn.		Zn.		
Pb.		Sb.		
As.				
PHYSICAL PROPERTIES				
T.S. / E.L.	LBS. PER SQUARE INCH	206080 / 185920		
EX. / CO.	PER CENT.	15 / 60		
PROOF	DIAM."	0.50		
	LENGTH"	8.00		
FRACTURE		D.S.C.		
RATING	U.			
	H.			
TREATMENT		TEMPERED		

SUBJECT: CHROME NICKEL STEEL
NUMBER: CCXIII MARK: S-3
FROM: FELIX BISCHOFF DUISBURG. NEW YORK, 5-10-07
SPECIAL SOFT VARIETY.
PHOTO OF A SECTION OF THE SOFT CORE OF A TEMPERED SPECIMEN.
NOTCHED BAR TEST
72 FOOT POUNDS TO RUPTURE
HOT NOTCHED BAR TEST
217 FOOT POUNDS TO RUPTURE
MAGNIFIED 580 DIAM.

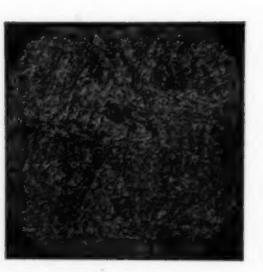


FIG. 15.—Bischoff chrome nickel steel magnified 580 times

Unfortunately, uniformly inferior products are prevalent, and no rule seems to be at hand by following which they may be avoided, hence the problem is one demanding the utmost care and attention, coupled with the closest possible observation.

One would naturally infer that the steel mill is the place in which to settle all such matters, but the failure of the steel mill to do so is reason enough for proceeding independently. Steel mills are places engaged for the most part in whipping raw material into shape on the basis of using the cheapest and most abundant raw material, into the shape that will command the highest price. Mills wax sarcastic when they are called upon to deliver what they term "jewelry steel," and it is now a fairly established fact that jewelry steel from common grades of blast-furnace pig *is cheap jewelry at best.*

Desirable Properties that Alloy Steels Should Possess.

Alloy steel possesses merit in proportion as the alloying elements are dissolved in iron free from all else besides. Of course, it is not possible to alloy pure iron with chromium, nickel, vanadium or tungsten, as the case may be, because some carbon must be present, and the metalloids are not to be entirely eliminated.

The best products thus far obtainable have compositions, viz.:

(a) almost devoid of phosphorus.
(b) almost devoid of sulphur.
(c) very low in silicon.
(d) closely limiting manganese.
(e) holding an appreciable percentage of copper.
(f) with the merest trace of arsenic.

Experience so far gained has established limits within which the alloys must be confined, and the relations of the alloys, each to the other, is equally a matter that cannot be ignored.

That the micro-structure is the most beneficial to view when it is desired to know just what transpires if variations are made in the relations of the alloying elements is now quite plain, and changes in the metalloids or in the carbon content are readily noted, even at fairly low magnification.

Besides variations of components there are variations in condition as well, as, for illustration, the pearlite may be granular or lamellar, depending upon circumstances, or the structure may be abnormal.

It has been said the normal structure is that produced by the selective freezing process, conditioned upon the composition of the product, allowed to solidify and to further cool down to the atmospheric temperature, slow enough not to interfere with the selective freezing process.

The abnormal product, then, would be that resultant of a heat manipulation, since in any case the composition—generally speaking—would be the same for the normal as for the abnormal steel, but the carbon condition would not be the same, so that whilst the total carbon, as found by a "combustion test," might be the same in both the normal and the abnormal steel, the carbon would not be the same as viewed by the microscope, or as would be depicted in a micro-photograph.

Critical Points in Cooling Steel.

It is now generally well understood that steel, if heated to a sufficiently high point, say 850° C., will, if allowed to cool slowly, exhibit phenomena observed by Osmond as follows:

In the cooling process, if allowed to proceed uninfluenced, points in the range will be observed, at which the cooling process arrests, a pause takes place, as it were. These "critical points" are designated as Ar_1, Ar_2 and Ar_3, of which there are three points during the cooling of iron and steel if it is quite low in carbon.

On the other hand, during the heating process there are "converse critical points" and they are designated as Ac_1, Ac_2, Ac_3 points. If, however, the carbon content is quite high, the critical points Ar_2 and Ar_3 verge, whilst the converse points verge also.

These critical points do not always become apparent at precisely the same temperature, for, as Mr. Osmond stated, they are influenced by the ratio of heating or of cooling, as the case may be. At all events, it is the carbon present that the authorities ascribe these phenomena to, and by observation and through the utility of micro-photographs they have been enabled to fix the probable carbon condition, in view of the temperatures to which a given product may be subjected. Moreover, the allotropic condition of the iron would take on states depending upon the nearness of critical points, and right here it may be well to say the working of nature hard steel will be much facilitated by taking into account the critical points and ranges, together with the time allowed for both heating and cooling, in all attempts at heat treatment.

Harboard sets down the Ar ranges as follows:

CRITICAL RANGES.

	Commences.	Maximum between.	Conclusion.
Ar_1	845°	825° to 810°	800°
Ar_2	755°	736° to 725°	710°
Ar_3	680°	662° to 655°	645°

Temperatures given in Centigrade.

These ranges and temperatures hold for iron and mild steel. It is further pointed out that changing the carbon changes the temperature, hence carbon is the source of the phenomena. Moreover, the rate of cooling is something to be taken into account.

In the heating up process the critical points do not hold at the same point on the thermometer scale, because of a lag or a lead depending as the temperature moves up or down. The difference is fixed at something like 30° C.; that is to say, the heat retarding influence takes place on the scale some 30° C. above the point observed for the heat addition on cooling down.

Vanadium seems to be entitled to the center of the stage just at the present, although it may not be out of place to say that vanadium has been in quite extensive use for several years. Most of us used vanadium unconsciously in some of the superior alloy steel products, but took no notice of the fact because the amount of vanadium present was in many cases so low as not to attract attention; moreover, the analysis for vanadium is attended by much difficulty. It now seems to be quite certain that a "poison dose" of vanadium is that, even as low as 0.20 per cent., and the authors have actually succeeded in establishing the fact that 0.25 per cent. vanadium in an alloy steel product is a considerable excess, and it has been shown that the same steel without vanadium up to 0.25 per cent. would render superior service. It is no wonder, then, that small increments of vanadium as 0.08 per cent. would go unnoticed for a long period of time, and yet so little of this element in some grades of steel would suffice for "scavenging" purposes. The American Vanadium Company, in their advanced work, are persistently recommending a limit of 0.18 per cent. vanadium, and whilst the amount desired, according to them, is a variable, the maximum is fixed at this low point.

There is now some chance for controversy leading up to the question whether or not nickel should be a content if vanadium is present. Chrome vanadium steel holds excellent properties and should find a wide range of uses, but the tests accompanying this article will show some remarkable results using nickel, and it is proper to point out that such steel as the Bischoff Special Auto Steel holds nickel as well as chromium and vanadium.

It is regrettable that the American Vanadium Company did not include in their comparative tests as given with this article tests of such products as the Bischoff Special Auto Steel; moreover, some of the Krupp products are chrome nickel vanadium steel, and their properties are quite too good to be ignored.

So far the authors have been unable to get away from the fact that any considerable amount of vanadium in alloy steel poisons the product and they are of the opinion that for steel of the greatest strength a very small dose of vanadium, retaining nickel and chromium, of course, holds out the most promise.

WILES OF THE UNTAMED CHAUFFEUR

By CHARLES B. HAYWARD.

WE were riding uptown in a car together, a chauffeur whose acquaintance I had made and myself, and the subject of "being pinched" came up for discussion. "Now, there's one of them, over there with his bike," and the man at the wheel beside whom I was sitting, inclined his head to indicate the position of one of New York City's traffic policemen, whose chief duty nowadays seems to be that of apprehending those whose desire to "let her out" gets the better of them at times.

"He's a fresh guy," continued my seat mate at the wheel. "Just watch me fool him," he added, happening to catch the eye of the guardian of the law who was regarding us suspiciously from a distance. Suiting the action to the word, the moment their glances met the chauffeur shifted back to second with a bang and pressed the accelerator pedal down. We had previously been running along smoothly on the high at about ten miles an hour, as shown by the speedometer, and the change resulted in bringing the speed to about twelve, but the car—an old one of the side-chain type—sounded as if it were going thirty.

"Here he comes," piped up my friend, announcing the success of the ruse, then carefully keeping his eyes straight ahead. Sure enough, the policeman had ceased to pose and was coming after us on his bicycle. As our speed had only increased a mile or two, he naturally had no trouble in overtaking us, but verifying the reading of his own speedometer by ours which was in plain sight from his seat, he indulged in some choice compliments, during the delivery of which my friend discreetly maintained silence, and then sheered off to watch for other game.

"That gets 'em, every time," gleefully chirped up the deceiver, once the threatened "ride to the house" was no longer an impending risk. "They think every time they see you handle the lever and the car makes a little more noise, you're hittin' it up at a good thirty or more, and this is the old bus to fool 'em all right." Something to which I tacitly gave assent, for on the second with the motor speeded up she made a hullaballoo like a saw-mill cutting through hard knots in a pine log.

Things lapsed into silence for several blocks, during which time we passed other minions of the law without attracting unfavorable attention, and the sight of which did not appear to induce a desire to give further demonstrations of the efficacy of the deception. Then my friend suddenly exclaimed, "There goes a 'skunk'!"

With solid rows of houses on either side of the street and nothing more suggestive of the country than a sun-dried strip of grass under which the subway trains rumbled at intervals, I looked around in a puzzled way to detect the unsavory quadruped that had called forth the remark. Finally, unable to contain my curiosity any longer, I innocently inquired, "Where is it?" which only brought forth an amused look of amazement.

"Huh, you're not on, eh? Well, there comes another," and he indicated the negro driver of a big, spic-and-span car approaching from the opposite direction. "We have no use on earth for them fellers," he went on, from which I learned for the first time that the race problem had been injected into the business of driving and taking care of an automobile.

"They're no use, and every one of us makes life a burden for every coon 'shover' that comes our way," he went on, detailing in his own way the deep-rooted dislike that every white driver had for his brothers of a darker shade who had the effrontery to so demean a high profession as to enter its ranks. Then, lapsing back into his usual good humor, he added: "Those fellers certainly do have a hard row to hoe. They simply can't get a square deal in any of the garages in this town," he went on laughingly as he recalled an incident that tickled him.

"Only last week one of 'em got a job taking care of a big imported car that was stalled in our place regular. It was bran' new—just run around from the carriage maker's, not a speck on it anywhere—but that coon went round with a magnifying glass and a chamois givin' things an extra polish off before he quit that night. We fixed him allright allright. He wasn't much more than out of sight before we had the spark plugs out of the machine and filled the cylinders with about a gallon of thick shellac. Trouble? Well, I guess. That car was in the shop two or three weeks and I wouldn't have taken the job of cleanin' up that mess for a hundred plunks.

"Oh, no, nobody did it. The woman what owned the rig made a holler, but the garage keeper don't have the hirin' of us, so no one lost his job. You see," he added, in a tone meant to put an effective quietus on the subject, "the garage keepers ain't got any more use for skunks than we have."

Not to pursue an unpleasant subject any further, I inquired how much truth there was in the reputation that most chauffeurs had acquired for grafting on the gasoline supply, not to mention a host of other things. But any fears that I might have had as to professional reserve on such a delicate subject of inquiry, proved entirely unfounded.

"Sure thing, some of the fellers pinches the gas right under the old man's nose. Of course, I ain't givin' no names, but a friend o' mine who drives a big 60 ——, turned the trick neat. His boss put up a holler about the car usin' so much gas when he hadn't been making any long runs, and he wanted to be shown. So my friend rigs up a deal to show him. Says the old man one day, comin' into the garage, 'put ten gallons of gas into her and we'll see how long it lasts.' The boss goes back into the office for a little while and my friend gets to work and fixes up the plant. He takes a five-gallon can, takes out the drain plug of the carbureter and puts the can under it. The gas sure comes out in a good stream, but a funnel and a chamois for it to drop on, and it doesn't make a bit o' noise. Then he gets things ready at the tank and invites the boss out to see the ten gallons put in. By delayin' things good and plenty, by the time he has the ten in the tank, five is out again in the empty can, and it's no trouble to get the plug back without any one gettin' wise, for all he has to do is to turn the stopcock in the line to cut off the flow, and then people expect you to be always doin' some fussin' or other about the car anyway. He fooled him allright.

"Ah, cut it out! we fellers don't get the rake-off on tires and things that people talk about. That's all a pipe," he returned in a disgusted tone to my lead about other kinds of graft. "When a feller wants to show the old man that the car is chewin' up twice as much gas as she ought to, he don't do it for the coin. He might be runnin' the car himself. A run down to the beach and back means 50 or 60 miles easy, and then when the governor's away over Sunday, a feller might take his friends a couple o' centuries or more, without any one bein' the wiser except for the half-barrel o' gas or so that he uses up."

"These big ones do use a powerful lot o' gas," he replied to my audibly expressed doubt that a car could consume as much fuel in a day's run as he had indicated. Then, you see, we don't spare it none, so we hardly ever do more than twelve or thirteen to the gallon, and most of us not that much by a good deal. Besides, we always hit the tank for a pint or so every time we do any wiping and to wash up on after gettin' through.

"Oh, yes, same way with oil and grease," he laconically assented in reply to a suggestion in that direction.

"Who pays for the tires you happen to damage on these 'joy rides' with your friends?" I inquired, cautiously.

"Oh, the governor has to dig down for everything. We don't stand for anything of that kind. What's the use?"

Unfortunately, I had to cut the interview short at this point by leaving the car, but promised to accede to the pressing invitation of my friend to take another ride with him in the near future, and, by the way, learn something more of the under side of taking care of a car, though this was not expressly included.

CHARACTERISTICS OF THE AMERICAN RUNABOUT

By WALTER IRVING.

WHATEVER may be said with reference to present-day standardization of automobile engineering practice, a study of the characteristics of American runabouts will reveal an astonishing variety of ideas as to the relations that should exist between the weight of the car, the power of the engine, and the price for which the car should be sold. Some conception of the great diversity of opinion that must necessarily exist among automobile engineers and manufacturers may be gathered from a study of the accompanying table, which gives the weight, horsepower, and selling price of a number of well known runabouts, equipped with engines having from one to four cylinders. Naturally such a tabular analysis cannot take into account the differences in design, workmanship, and quality of materials, as well as of finish, all of which must be considered by the prospective purchaser in deciding what type of car most nearly meets his requirements as to external or internal finish, durability, power, and economical performances.

However, the table may serve a useful purpose in directing attention to facts that would otherwise be less well understood. For example, the table shows that, according to catalogue ratings, the majority of runabouts having single cylinder four-cycle engines weigh from 1,000 to 1,200 pounds, the average weight being 1,011 pounds, as shown in the summary. Most of the buggyabouts, or high-wheel runabouts, a typical western product of growing popularity, weigh from 500 to 900 pounds, while runabouts having the double opposed type of four-cycle engine weigh from 1,000 to 1,800 pounds. Considering only maximum and minimum weights to obtain an average for each class of runabouts, the results are approximately as follows: Buggyabouts, 750 lbs.; single-cylinder cars, 1,050 lbs.; double-cylinder opposed, 1,500 lbs.

Price popularity is indicated by the table about as follows: Buggyabouts, $600; single-cylinder cars, $650 and $800; double opposed, $800 and $900; low power four-cylinder cars, $600 and $750. When the prices for each type of runabout are averaged, however, the figures obtained are about as follows: Buggyabouts, $530; single-cylinder runabouts, $680; double opposed, $1,025; low power four-cylinder, $600 and $750.

Power ratings for runabouts of approximately the same weight vary within surprisingly wide limits. Curious as it may seem to many, the western buggyabout, or high-wheel type of runabout, is provided with an engine rated as being from 20 to 25 per cent. more powerful than those of the older style of runabout—having single-cylinder vertical and horizontal engines of the four-cycle type. Doubtless, this is due somewhat to the development of the two-cycle type of engine, with which several of the runabouts are equipped. Two-cycle engines having single and twin cylinders and also double opposed cylinders are employed; in fact, there seems to be a growing tendency to find a wider application for this type of engine in all classes of motor vehicles, regardless of their size or weight.

Most of the runabouts equipped with double opposed four-

COMPARATIVE ANALYSIS SHOWING RESPECTIVE WEIGHTS, HORSEPOWER AND PRICES OF AMERICAN RUNABOUTS.

Name of Car and Type of Engine	Weight of Car, in Pounds	Maximum Horsepower	Weight per Horsepower	Selling Price	Price per Pound of Weight	Price per Horsepower
BUGGYABOUTS.						
Albany, B	500	7	71.4	$325	$0.65	$46.43
Chicago	900	15	60.0	750	.833	50.00
Cosmopolitan..	500	5	100.0	350	.700	70.00
Dayton, C.....	1,050	15	70.0	600	.571	40.00
Duer, A.....	950	12	79.2	750	.789	62.50
Farmers' Auto	800	14	57.1	600	.750	42.85
*Federal	650	12	54.1	475	.730	39.58
Hatfield	800	12	66.6	600	.750	50.00
Holsman	845	10	84.5	650	.769	65.00
Postal, I.....	900	12	75.0	475	.523	39.58
Schacht	650	12	54.1	640	.984	53.33
Success, B....	450	4	112.5	275	.611	68.75
Success, C....	700	10	70.0	400	.571	40.00
RUNABOUTS.						
Single Cylinder, Vertical.						
Brush	850	6	141.6	500	.588	83.33
Covert	750	6	125.0	650	.866	108.33
*Jewel, D.....	900	8	112.5	600	.666	75.00
*Palmer	800	8	100.0	500	.625	62.50
Single Cylinder, Horizontal.						
Cadillac, K....	1,100	10	110.0	800	.727	80.00
Courier, F.....	1,100	7	157.1	650	.591	92.85
Gale, C-7.....	1,100	10	110.0	600	.545	60.00
Glide, C.....	1,350	10	135.0	800	.592	80.00
Hewitt	1,200	12	100.0	1,000	.833	83.33
Neilson, 7.....	1,000	12	83.3	800	.80	66.66
Reo	975	8	121.8	650	.666	81.25
Double Cylinder, Horizontal Opposed.						
Aurora	1,000	14	71.4	700	.700	50.00
Autocar, XV..	1,450	12	120.8	1,200	.827	100.00
Buick, G.....	1,600	22	72.7	1,150	.718	52.27
Cartercar, D..	1,800	24	75.0	1,250	.694	52.08
Continental ..	1,000	14	71.4	900	.90	64.28
Crown	1,000	12	83.3	750	.750	62.50
Detroit	1,800	24	75.0	1,500	.833	62.50
Gale, G7.....	1,500	14	107.1	900	.600	64.28
Jackson, D....	2,200	24	91.7	1,500	.681	62.50
Knox, F4.....	1,600	16	100.0	1,400	.875	87.50
Leader, B.....	1,200	18	66.6	1,000	.833	55.55
Logan, F.....	900	10	90.0	900	1.000	90.00
Marvel, A.....	1,300	14	92.8	800	.615	57.14
Mason	1,700	24	70.8	1,285	.756	53.54
Maxwell	1,100	12	91.6	825	.750	68.75
Monarch, E...	1,100	14	78.5	900	.818	64.28
Northern, C...	1,800	24	75.0	1,600	.888	66.66
Pierce-Racine, A-3	1,200	12	100.0	750	.625	62.50
Queen, E.....	1,300	16	81.2	800	.615	50.00
Rambler, 27...	1,500	16	93.7	950	.633	59.37
Steel Swallow.	800	8	100.0	700	.875	87.50
Wayne, H.....	1,000	14	71.4	800	.80	57.14
Two-cylinder, Vertical.						
*Atlas	1,400	20	70.0	1,250	.892	62.50
Mitchell	1,100	10	110.0	750	.681	75.00
Twyford	1,400	15	95.5	1,000	.714	66.66
Wolverine	1,000	10	100.0	750	.75	75.00
Four-Cylinder, Low-Powered Cars.						
Ford, N.....	1,050	18	58.3	600	.571	33.33
SUMMARY.						
Buggyabouts:						
Min.	450	4	54.1	275	.523	39.58
Max.	1,050	15	112.5	750	.984	70.00
Av.	745.7	10.7	73.4	530	.710	51.38
Single-cylinder Cars:						
Min.	750	6	83.3	500	.545	60.00
Max.	1,350	12	157.1	1,000	.866	108.33
Av.	1,011	8.81	117.8	686.36	.681	80.29
Double-cylinder, Opposed:						
Min.	800	8	66.6	700	.600	50.00
Max.	2,200	24	120.8	1,600	1.00	100.00
Av.	1,356.8	16.27	80.9	1,025.45	.763	65.01
Two-cylinder, Vertical.						
Min.	1,000	10	70.0	750	.714	62.50
Max.	1,400	20	110.0	1,250	.892	75.00
Av.	1,225	13.75	93.87	937.50	.759	69.79

*Two-cycle.

*Two-cycle.

cycle engines are rated at from 12 to 14 horsepower, but there are quite a number of cars having engines rated as high as 24 horsepower. The low or medium-powered runabouts having four-cylinder, four-cycle engines are popularly rated as having 16, 18, 20, and 24 horsepower. On referring to the summary, it will be noticed that the average power ratings are as follows: Buggyabouts, 10.7; runabouts with single vertical and horizontal engines, 8.81; double opposed, 16.27; low power, four-cylinder, 15.

Other things being equal, the car having the most power for the least weight is generally considered to be the most desirable, for the cost of maintenance of tires for a given mileage over ordinarily good roads is much less with light than with heavy cars. Examination of the table shows that, as one would naturally expect, the single-cylinder runabout weighs more per horsepower than any of the others. The lowest tabulated weights per horsepower are as follows: Single-cylinder cars, 83.3 lbs.; buggyabouts, 54.1 lbs., showing rather a great disparity in this respect.

Considering the question of price per horsepower, the table shows that the Ford, Model N, costs less than any other car. The price per pound of weight is correspondingly low, but it is not as low as that of the Postal, a 12-horsepower buggyabout weighing 900 pounds and selling at 52.3 cents per pound of weight. Reference to the table will show that the average prices per horsepower are approximately as follows: Buggyabouts, $50; two-cylinder runabouts, $65, and single-cylinder cars, $80, there not being as much difference here as in the weights.

A tabular analysis such as is here presented may not answer the query, "Which do you want, ability or pounds?" but eliminating questions involving design, strength of materials, endurance, fuel economy, and general equipment, it does give some idea of the comparative merits of different types of runabouts from a mechanical standpoint.

TO OBTAIN FACTS: COMPARE INITIAL COST AND MAINTENANCE

CLEVELAND, O., Oct. 14.—Prof. L. J. Buschman, instructor on gas engines and automobile engineering at Case School of Applied Science, recently presented a paper on the "Efficiency of the Motor Vehicle." Prof. Buschman was one of the technical committee in charge of the recent endurance contest given by the Cleveland Automobile Club, and he has made a study of the efficiency of gas engines and gasoline automobiles. In part Prof. Buschman said:

"Of course many owners do not care how much the operating expenses amount to, but the majority of prospective purchasers are men who would buy if they thought that they could keep up the running expenses. Little data can be obtained from the manufacturer, as he has not taken the time to collect such information, because he can sell his cars as fast as he turns them out, although one company has been publishing some data in the advertising columns of the trade papers.

"Economy cuts more figure with the commercial than with the pleasure vehicle. The prospective purchaser knows what his horses cost and what they can do. Glittering generalities do not go and the salesman must come down to facts and figures.

"How, then, are we to judge of the merits of the different cars? Why not the same as when buying any other piece of machinery by comparing the initial cost and the operating expenses? To show how necessary it is to be careful in the various adjustments the following experiments are noted:

"In some experiments on fuel economy it was found that with the engine giving the same power, the consumption of gasoline would vary as much as twice that really required. The writer in experimenting with spark coils found that with apparently the same size of spark that one coil could be made to run on the battery with from one-half to two amperes by giving the vibrator screw a half turn, and with other coils four and five amperes with one turn or more.

"One way of getting satisfactory information is by a sealed bonnet contest where an account is kept of the gasoline, oil, and water consumption. It has been urged that the Glidden tour be made a contest of this kind. To this end every car should carry an observer appointed by another contestant. The cars should not only be penalized for breaking of seals and making repairs, but also for excessive gasoline, oil, water, tire, and battery consumption. The schedule for the day should not call for more than 15 miles an hour. In case two or more cars had perfect scores, the lowest powered car should be declared the winner.

"Various contests have been run to show the efficiency and economy of the motor car. A contest was recently run off in London where the car ran up an incline and stopped while the engine ran for ten minutes. This was then repeated with the car backing up the incline. Samples of the exhaust gases were then taken and an analysis determined the winner."

SOME FIGURES ON AMERICA'S RECORD OUTPUT

A striking example of the growth of the American automobile industry is furnished by figures on the output of the most important firms of the American Motor Car Manufacturers' Association exhibiting at the Grand Central Palace show. It is estimated that the output during 1908 of the fifty-one firms included in the A. M. C. M. A. will be 37,000 automobiles, selling at an average price of $2,533. The estimated total output in the United States for next year is 55,000 cars.

Eight firms occupying the center spaces at the Palace show will produce during the coming season at least 27,000 cars, most of them of the low power, popular type. During the past twelve months the Ford Company sold 10,000 runabouts and will produce 15,000 next year. The Maxwell people will make 5,000 cars at their factories in Tarrytown, N. Y., Pawtucket, R. I., Chicago, and New Castle, Ind.; R. E. Olds announces that the Reo Motor Car Company's output will be 4,000 cars; the Mitchell Motor Car Company will make 3,000; Stoddard-Dayton about 2,100; the Premier company, 600; Wayne, 600; and National, 400. Even conservatively listing the Ford output at 12,000, this gives a total of 27,700 automobiles of a popular type. It is worthy of note that a large number of these firms having contributed to place the American automobile industry in the lead numerically are of quite recent origin.

Complete figures on the output of every American constructor are not yet available, but the estimate of 55,000 cars is considered to be a fairly accurate and conservative one, and the 27,700 of the eight makers of popular cars is alone sufficient to show the huge proportions which the industry has assumed in a few years. It also bears striking testimony to the fact that the American maker has been forehanded in this respect. He has realized that the ultimate demand will be for the popular-priced car, which must be turned out in vast quantities if the demand is to be successfully met, and the surprisingly good materials and workmanship he has been able to put in them is the wonder of foreign makers. In this field the American manufacturer has far outstripped the foreigners, already sending large numbers abroad.

LETTERS INTERESTING AND INSTRUCTIVE

REGARDING SELDEN PATENT AND ROYALTIES.

Editor THE AUTOMOBILE:

[942.]—I have been a constant reader of your "Letters Interesting and Instructive," and would like to ask a few questions.

1. What particular part or principle in automobile construction is covered by the "Selden" patents?

2. Are all builders of automobiles in this country paying a royalty to the "Selden interests?" If so, how much?

3. Would there be any serious objection to tightening down the adjusting screws on a four-unit vibrating coil, making it a non-vibrating coil, the putting an ordinary electric buzzer with platinum contacts in the primary circuit between the battery and the "ground" connection on the frame, thus using the buzzer as a master vibrator? SUBSCRIBER.

Moline, Mich.

1. Broadly speaking, the Selden patent covers the combination of an internal combustion motor of the compression type to a road vehicle or horseless carriage with a means of disengaging the connection between the motor and the road wheels. On that account, it is considered basic, and if upheld as valid will apply to practically all gasoline automobiles as at present constructed.

2. Earlier in the career of the American automobile industry, the majority of the more prominent makers formed an association and each agreed to pay a royalty. This is the Association of Licensed Automobile Manufacturers, or, more familiarly, the Licensed Association, or Selden Interests. The royalty is 1 1-4 per cent. It has been the policy of the association to restrict its membership practically to the organizers, as its constitution is to the effect that only firms who were established automobile manufacturers at the time of its formation, are eligible to membership. In the meantime, the American industry has grown to such an extent that the members of the Licensed Association now only represent about 1-3 of the total, though the value of the cars turned out by them annually is much greater, proportionately to the total, than their numbers would indicate.

3. There would be no objection to this in principle—in fact, one firm is now marketing a master vibrator designed for exactly this purpose. But there would be considerable practical objection to the use of an ordinary electric buzzer. The latter is not an instrument of precision by any means, as will be apparent from the fact that probably two or three dozen buzzers could be had for the price of a single well-made vibrator. They are not designed for fine adjustment or hard work and would be constantly giving way.

ADVISABILITY OF INSTALLING ROLLER BEARING.

Editor THE AUTOMOBILE:

[943.]—I have a Jewell stanhope which answers my requirements in all respects, except that it runs hard on account of the plain babbitt bearings being badly cut out by sand.

Which would be better, to have the plain bearings rebabbitted, or to have roller bearings put in? If roller bearings would be the best, can you give me the names of some reliable makers of such bearings in the vicinity of San Francisco?

Berkeley, Cal. D. D. DAVENPORT, D.D.S.

Roller bearings would certainly be preferable to the old plain type, provided the design of the parts in which they are to be installed permits of their use without too much change, and also, in case you wish to go to the extra expense involved in equipping your car with an anti-friction type of bearing. The most obvious remedy, however, would be to have the old bearings rebabbitted and provide them with an efficient sand-excluding housing which would prevent a repetition of the trouble you complain of. We do not know of any maker of such bearings in or near San Francisco, but you will find the announcements of various makers of anti-friction bearings in the advertising pages of THE AUTOMOBILE, and the majority of such manufacturers have agents or branch houses on the Coast.

WHAT CAUSES WATER TO ISSUE FROM EXHAUST.

Editor THE AUTOMOBILE:

[944.]—More especially since the cooler weather of autumn, I have noticed a profuse liquid discharge from the exhaust of my car. My motor is of the double-opposed type, and this discharge is more marked after the engine has been at rest over night, and it apparently ceases after the engine has been running a few minutes. I first thought the liquid was unburned gasoline, but closer inspection reveals neither the odor nor taste of gasoline. Muffler explosions have occurred but a couple of times during the past six weeks, with the engine in use about every day. The engine runs very well and develops the usual power, but sometimes starts a little slow. Close attention has been given to the ignition and the carbureter. While the latter is wasteful, in that it leaks from one to two minutes after the motor stops running, I do not think it can cause this spray at the exhaust. Is this liquid unburned gasoline, notwithstanding my decision to the contrary, or is it water, as I believe it to be? If water, is it contained in the gasoline I use, or can it in any way result from condensation of atmospheric moisture, owing to the cooler weather?

For pages of "Letters Interesting and Instructive."

Farmland, Ind. L. N. DAVIS, M.D.

The moisture in the air is largely accountable for the liquid discharged at the exhaust for the first few minutes after starting. It is composed of the water of condensation and contains gasoline in almost the same proportion as the fuel mixture did, but this is so slight as to be hardly perceptible in the fluid in question, as it is an extremely dilute mixture. The warm air of the mixture will naturally condense as the cylinders cool on a frosty night and the same is true of the gasoline vapor. The carbureter needle valve doubtless needs adjustment, as it is evident that too much gasoline is being drawn through the nozzle, otherwise the carbureter would not leak when the motor was stopped. The presence of this water in the cylinder makes starting more difficult, and as a preliminary the cylinder drain cocks should always be opened so as to relieve the motor of it. Steam condenses in the same manner in a steam engine and it is frequently dangerous to attempt to start it without having allowed the water to escape. The quantity is naturally greater than is the case with a gasoline engine, but the same conditions obtain to a very great extent.

A COMMON DIFFICULTY WITH COMPLICATIONS.

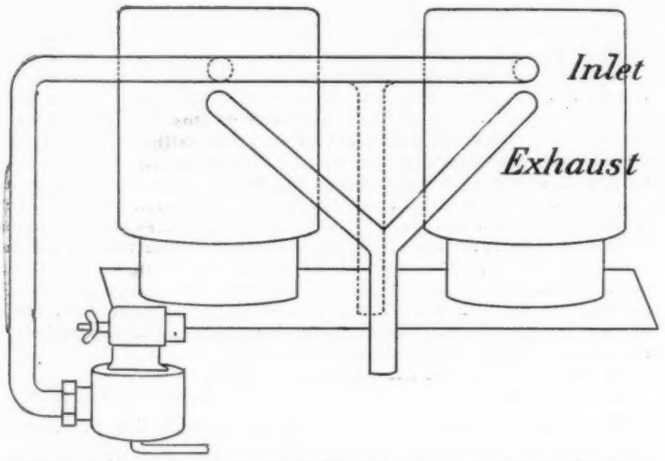
Editor THE AUTOMOBILE:

[945.]—Will you kindly publish through "The Automobile" a remedy for the following? I have a two-cylinder, small touring car about 10 horsepower, which is equipped with a Schebler carbureter. In winter my carbureter becomes clogged with soft ice, and the motor then stops. The air intake is about 2 1-2 or 3 inches from the exhaust pipe. I am using 1-2 inch standard gas pipe from carbureter to intake valves, and carbureter is about 16 inches below intake valves. Would covering this pipe with tape or flannel be a benefit, or would putting on an extra long piece of pipe from carbureter to exhaust pipe, and thereby take very hot air, do any good? I have it piped so that the carbureter is low down at the forward end of the motor, as shown by the accompanying sketch. Will you kindly advise me regarding this? F. C. FRANKS.

New York City.

From the arrangement of the piping on your car, coupled with the fact that the inlet manifold is but 1-2 inch iron piping, it is the greatest mystery to us that you have ever been able to make the motor run at all, or at least, satisfactorily. Piping hot air from round the exhaust pipe to the carbureter will doubtless overcome the fault you refer to, but the whole arrangement is fundamentally wrong and not calculated to give anything like as efficient service as the motor is doubtless capable of under favorable conditions. We should recommend discarding the present manifold entirely for a number of reasons. In the first place, it is far too small; it is too long; it has too many elbows and last but not least it is not of the proper material as iron pipe is not at all suited to the purpose. To add to all these, the

carbureter is not situated so as to serve both cylinders equally and, with the very small pipe used, it is quite a problem to us how the rear cylinder ever got sufficient fuel to develop any power, or in fact, to fire regularly. Make a manifold of smooth copper or brass tubing, the simplest form of which would be that of a T, the upper member of which would lie horizontally,



PRESENT ARRANGEMENT OF MANIFOLD AND SUGGESTED REMEDY.

extending from one inlet to the other, while the vertical member extended downward, outside or behind the exhaust manifold, according to which happened to be the most convenient as involving the least disturbance of the present arrangement. This is indicated by the dotted lines appended to your sketch, the carbureter outlet being changed so as to go directly on the lower end of the T without the intervention of an elbow as you have it at present. In such a position, the carbureter would be so close to the exhaust that no special piping would be necessary to convey hot air to it and the fault you complain of would be eliminated. Your case appears to afford a striking illustration of what unusually unfavorable conditions a motor may be made to operate under and still be considered generally satisfactory.

CORRECTIONS TO ANSWER TO LETTER 921.

Editor THE AUTOMOBILE:

[946.]—In your reply to letter No. 921, in the October 3d issue of "The Automobile," an error occurs which, while not of a serious nature in itself, may be the cause of trouble to your correspondent unless rectified.

In the diagram designated as "Fig. 3" are shown two sets of battery, each set consisting of six cells in series. The negative terminal of each set is grounded, while the positive terminals are each connected to a separate point of the coil switch.

So far as this goes the diagram is perfectly correct, but you have recommended and shown by dotted lines an additional wire to be run between the two positive terminals and to the center point of the switch, for the purpose of "permitting the use of either set of cells singly, or after they had been run down somewhat, of the use of both together, merely by moving the switch."

A moment's consideration will convince you that this third wire has the effect of placing the two sets permanently in multiple, and that in consequence it will be impossible to use either set of cells singly, as but the one arrangement is available, irrespective of the position of the switch blade.

With the ordinary type of coil switch there is but one practical way of obtaining the advantage of the multiple connection after both sets of cells are run down, and that is by then connecting the terminals of the two sets by a wire as you have shown; but it is not necessary to connect them to a third point on the switch, as by placing the blade on either of the two points the desired result will be obtained, while the third point is left free for the "off" position of the switch.

The use of a switch in the ground wire, as shown, is not necessary, the coil switch answering all purposes, though it is sometimes desired to bring the wires to some point where the extra switch may be located (usually on the steering column), for convenience in cutting off the ignition current quickly, as when braking with the motor. LOUIS E. SHAW.

New York City.

Editor THE AUTOMOBILE:

[947.]—Study answer to letter No. 921, published in the issue of October 3 of "The Automobile," and see if the connections indicated by the dotted line in Fig. 3 would give the desired result. I think you will find an error. J. HERBERT GIBBON.

Utica, N. Y.

In the current slang of the day, we have been caught "with the goods" and cannot "crawl," were we so inclined. A little consideration of the diagram in question reveals the error pointed out by the foregoing correspondents and it is a pleasure to note that so many of our subscribers are constantly on the lookout for such slips and bring them to attention promptly, as we have had occasion to learn in the past. As the letter of our first correspondent explains the nature of the slip and the way to avoid it, it is unnecessary to go further into this part of the matter. It is to be hoped that the writer of number 921 will note this added explanation.

NOVEL CURE FOR A PUZZLING POUND.

Editor THE AUTOMOBILE:

[948.]—In a four-cylinder car we have in our care there has been a bad pound. It is of the offset cylinder type, and we have been at a loss to know what could make it knock. By giving it an increase in gasoline in the mixture we could stop this, but then, of course, had no power. This has gone on for some time. To-day we accidentally discovered that there was a leak at the point of connection between the intake manifold and cylinder No. 2. Now this was the cylinder that seemed to pound. After tightening this leak and properly adjusting the carbureter there was no further pounding. We want your opinion as to whether the extra air admitted to this cylinder would make the mixture so thin as to cause this trouble. This may be of benefit to many with similar complaints.

Alliance, O. F. L. M.

It seems quite probable that the leak in the inlet manifold would be responsible for a pounding noise in the cylinder that it affected, as if any considerable amount of air were admitted, it would so impoverish the mixture that the latter would still be burning at a rather high pressure some time after the other cylinders had completed that portion of their cycle. Consequently, when the piston started to return on the exhaust stroke it would be resisted by this high pressure and a pound would result. The case is an unusual one and should benefit others who have been puzzled to trace the cause of a similar ailment in their motors. It may be that a knock will develop in the motor in question within a comparatively short time, due to the treatment the piston pin and connecting rod bearings in that particular cylinder have received as the result of the fault outlined and it will then be traceable to mechanical causes. Right here there is a chance for an amateur to go wrong, as he would doubtless put this second defection down as a repetition of the same thing and proceed accordingly, instead of attributing it to more natural causes.

FROM AN ADMIRER OF POLISHED BRASS.

Editor THE AUTOMOBILE:

[949.]—Have noticed an article in an auto paper advising users to plate or paint their brass work or brass lamps on their cars, claiming it was so much work to clean polished brass.

In my opinion, there is nothing as handsome as polished brass, and it is real, no plate or veneer.

It seems to me, to have plated or painted lamps on a car is about on a par with the man that wears a celluloid collar because it is so much trouble and expense to have linen laundered.

GRAY & DAVIS,

Amesbury, Mass. Wm. Gray.

ST. PAUL WANTS CREDIT FOR CHRISTIE'S MILE.

Editor THE AUTOMOBILE:

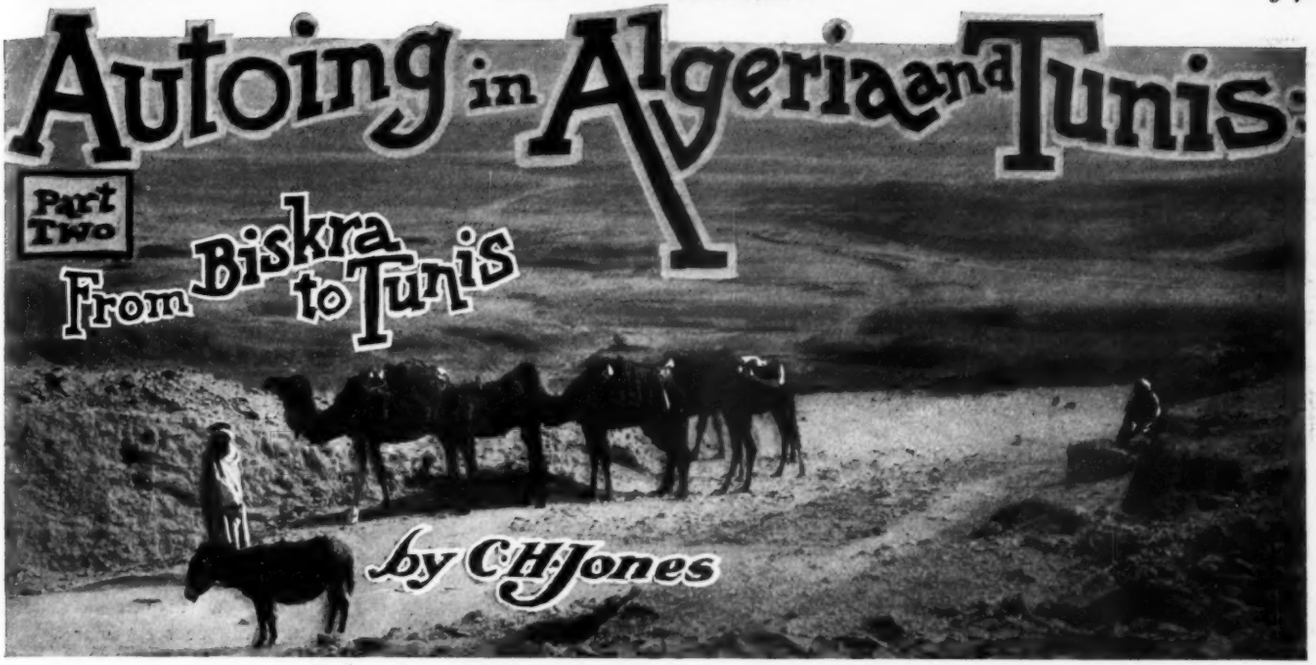
[950.]—Several times recently I have noticed in "The Automobile" an item with regard to Christie making the world's record in Minneapolis, September 7. I would respectfully call your attention to the fact that the world's one-mile circular track record of 52 seconds was made by Walter Christie, September 7, on the Hamline track in the city of St. Paul, Minn. Mr. Christie never raced against time or anything in Minneapolis, and St. Paul is entitled to the credit of the world's one-mile record.

St. Paul, Minn. JOHN. J. DOBSON.

Autoing in Algeria and Tunis:

Part Two
From Biskra to Tunis

by C. H. Jones



LOOKING OUT UPON THE DESERT, PILED WITH THE SANDS OF COUNTLESS CENTURIES.

LIKING Biskra better than any place we had yet visited in Algeria, we remained there ten days. Part of its attractions was the comparative geniality of its climate; yet even there, in the heart of the desert, the weather was a surprise. It was not really warm, although March was nearing its end, and during the period of our stay there were more cloudy than sunshiny days. We felt no inclination to change the heavy underclothing we had worn in New York, and persistent winds made overcoats and wraps comfortable. One of the residents, an American girl who married a French officer, and who had lived three winters in Biskra, told us that from the middle of December to the end of February she always found it necessary to wear furs and keep fires going in her living rooms; and she also told us that even at Tougourt, 132 miles farther south in the desert, the winter is distinctly a period of cold weather. But the most convincing test of climatic conditions was found in the appearance of vegetation. The growing wheat in the oasis was scarcely a foot high, the spring flowers were about as far advanced as ours at home are in April, and when we arrived on March 18 the deciduous trees, of which there are several varieties in the parks and gardens, were just putting forth their green leaves. The last day of our stay was brilliant with sunshine and agreeably warm, and made us reluctant to turn our faces northwards again towards the mountains and uplands.

It was 7:10 A. M. of Wednesday, March 27, that we bade adieu to Biskra and started on our return journey across the desert to El Kantara. At the summit of the Col de Sfa we paused again for the unforgetable view of the distant oasis, with its glimpses of white buildings amid the vivid green of the encompassing palm trees, and of the far-stretching desert horizon which had become to us a thing of fascination as well as of mystery. El Kantara was reached at 10 o'clock, and for 25 kilometers beyond we traversed the same road by which we had come from Sétif ten days previous. It is one of the "grande national routes," extending from Philippeville on the Mediterranean to Constantine and from Constantine almost due south to El Kantara. It is a wide macadamized road, for the most part in excellent condition, but traverses a country singularly arid, barren and devoid of interest, save for occasional fine mountain views. A very sparse population is gathered in squalid villages, which are seen at long intervals; the chief signs of life encountered en route being numerous small diligences or coaches, drawn by lean horses, and packed with natives like sardine boxes. These diligences are perhaps the most characteristic feature of the roads of Algeria. They ply in every direction, even alongside the railroads, and while the trains run nearly empty, they are jammed with passengers and piled high with freight. Why and by whom they are patronized is as great a puzzle as the native markets. These markets are held on stated days in every town, and are often seen at places on the roadside otherwise uninhabited. Wherever they are held they are thronged with people and domestic animals, and the display of fruits, vegetables and other native products is usually varied and abundant; yet where and how and when these products are produced is a mystery, for one hardly ever catches the natives at work. They are seen by hundreds riding donkeys, driving camels or sheep, crowding diligences, playing dominoes, or idling in cafés, dozing in the shade or basking in the sun, and when two or three are gathered together they are voluble in talk; but to see one actually at work in field, or garden, or on the road is a rare experience. They remind one of the historic instance in which the people of an entire community are declared to have earned a living by taking in each other's washing.

A NEGRO MUSICIAN OF BISKRA.

As we climbed up to the plateau of the Tel the distant mountains lifted their snow-capped crests and on the hills adjacent to our road was a slight sprinkling of recently fallen snow. It rained next morning at Batna and on the hills near the town there was an appreciable snowfall. At the hotel a sitting room with a big castiron American stove in it gave one a sensation of warmth, as novel as it was grateful. Yet the date was March 29.

Shortly before noon we reached Batna, 68 kilometers from El Kantara, and went to the Hotel des Etrangers, which has a good garage, with gasoline for sale at 3 francs 50c. for the bidon of 5 liters (about 56 cents a gallon). There is nothing to attract at Batna, which is a small garrison

THE OASIS, WHICH INVITES REST AND REFRESHMENT.

town, painfully new and European, but it is the point from which an excursion may be made to the ruins of Timgad, 37 kilometers distant, by an excellent though remarkably sinuous road. We went there in the afternoon and agreed on our return that we had had perhaps the most interesting experience of our trip and one that we should have been very sorry to have missed.

An Unearthed Early-Century Roman City.

Timgad, the ancient Thamagudi, was situated at the intersection of six Roman roads and was one of the outposts of the Empire in Numidia. It was built by order of the Emperor Trajan as the headquarters of the Third Legion, and the soldiers of that legion were employed in its construction, which began in the year 100 A. D. and was completed about the year 170. It was a flourishing city for more than 500 years and then succumbed to the Arab invasion in the seventh century. Shattered by earthquakes and covered by a slow accumulation of sand from the plain and soil from the mountains, it lay buried for nearly 1,200 years. Its excavation was begun under government auspices in 1881, and with a small annual appropriation has been continued ever since. About two-thirds or three-quarters of the area of the ancient city has been disinterred, including the Forum, the Capitol, the Basilica or Court of Justice, the Theater, the principal temples, the Arch of Trajan, the Market Place, extensive baths or thermæ (these are very striking), fountains, shops, and private residences. Miles of the original street pavements, bearing the marks of the ancient chariot wheels, stand revealed; and altogether these ruins are the most interesting Roman remains that have yet been found, with the possible exception of Pompeii.

Timgad was a more important city than Pompeii, with a larger population and finer buildings; and as it was built by imperial fiat, at the height of Rome's power and splendor, it may be taken as an adequate example of the Roman conception of what a city should be. No doubt some of the best Roman engineers and architects were sent to supervise its construction, and it is probable that before a stone was laid or a foundation dug the city had been planned as a whole, and the location of its principal streets, monuments, and buildings determined. At Paestum, at Girgenti, and at Segesta, also at Dougga and El Djem here in North Africa, may be seen single temples, theaters, or other structures in better preservation than any building at Timgad; but nowhere else can one obtain so vivid and so accurate an idea of what a Roman city was as a whole in the classic days of the Empire.

STREET IN KAIROUAN—MOSQUE OF THE SWORD IN CENTER.

In the museum near the entrance to the ruins are some of the finest ancient mosaics yet found, and in the baths or thermæ some of the mosaic pavements have been left in their original position. If possible, a whole day should be given to Timgad, and such a visit will repay all the trouble and expense of a trip to North Africa.

On the way to Timgad, about ten kilometers from Batna, are the ruins of Lambese, the ancient Lamboesis. The most interesting of these can be seen from the road in passing, and the time required for a closer inspection can be spent more profitably and interestingly at Timgad.

The road from Batna to Constantine leaves nothing to be desired, though the country traversed is without interest, and very fast running is safe. We made the distance, 120 kilometers, in a little more than two and one-half hours and arrived at Constantine in time for midday lunch on Thursday. There are two first-class hotels at Constantine and a spacious garage where supplies and accessories of all kinds may be had, but the charge for garage (5 francs or one dollar a night) is excessive. The charge for gasoline is 50 centimes a liter (40 cents a gallon.)

Constantine, a Mighty City of Eighty Sieges.

The city of Constantine is, next to Algiers, the most important and populous in Algeria. It has about 50,000 inhabitants, of whom nearly 16,000 are French, 8,000 are Jews, and 25,000 are Arabs. Each of the latter races has a distinct quarter of the old city, which are especially interesting to visitors, and the European quarter is growing rapidly and contains some fine modern buildings. By reason of its location on a gigantic mass of rock rising precipitously and towering a thousand feet above the surrounding plain, from which it is cut off on three sides by the profound chasm of the river Rummel, it must have been from the very earliest times the site of a city and fortress. As a Phœnician colony it was known as Cirta. Captured by the Romans about 70 years B. C., it took the name of the Emperor Constantine in the fourth century of our era. Falling like the other cities of this region before the Arab invasion, it was taken by the Turks in 1535 and by the French in 1837. During its long history it successfully withstood eighty sieges, and before the invention of longrange artillery it was practically impregnable, for direct assault was impossible.

Besides the Arab and Jewish quarters, the places best worth visiting are the Palace of the Bey el Hadj-Ahmed, a fine specimen of Moorish architecture, the Mosque Djama-el-Kattani, the Palais de Justice, the Casbah or citadel, and the markets; and no one who wishes to get an adequate idea of the remarkable situation of Constantine should fail to traverse the Chemin des Touristes (Road of the Tourists) cut out of the opposite cliff of the Gorge of the Rummel and affording startling views looking either up or down.

A Run Through the Granary of North Africa.

Between Constantine and Hammam Meskoutine, a distance of 112 kilometers, the road is one of the most serpentine ever constructed. Otherwise it is good, the descent from Constantine to the level of the sea at Bone being very gradual. The aspect of the country and of the few towns en route is distinctly European.

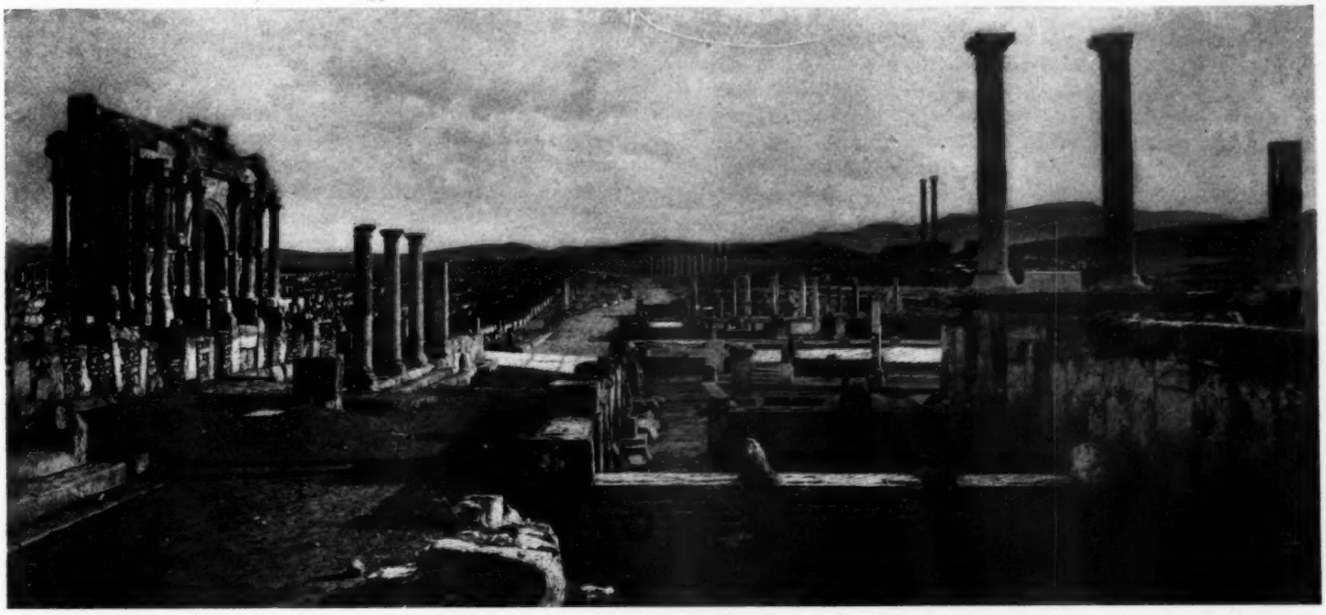
Few Arabs or other natives were seen, and the European colonists are scattered in farm houses that lie at long distances from each other. This is one of the chief wheat growing sections of North Africa and vast wheat fields extended in every direction as far as the eye could reach. Farming operations are evidently carried on on a large scale, and the soil looks fertile and well tilled. During the Roman period Northern Africa was the granary of the Empire and was the source from which the bread came that was furnished free by the Cæsars to the turbulent populace of Rome. Under proper cultivation Algeria and Tunis could now supply France with all the wheat she needs to import, but native agriculture is primitive and the average yield of wheat in Algeria is only eight bushels to the acre. In the section between Constantine and Bone, however, the yield must be much greater, as the result of European methods.

To reach Hammam Meskoutine we had to make a divergence of five kilometers from the main road at a distance of 107 kilometers from Constantine, but no automobilist should fail to make it, for the road is good all the way, and Hammam Meskoutine is not only one of the most attractive and interesting

The waters are utilized for bathing purposes in two establishments, one for natives and the other for visitors. There is a comfortable and well managed hotel with several sun-terraces. And the mildness and uniformity of the temperature are shown by the luxuriant vegetation, of which orange and lemon trees are the most striking feature, though there are olives, myrtles, and palms in abundance, and multitudes of flowers in marvelous variety. After desert wastes the sight is delightful.

After enjoying an excellent lunch at the hotel and inspecting the attractions of the place, we returned to the main road and resumed our journey toward Bone, distant eighty-six kilometers. Soon the hilly character of the country changed and we traversed level prairies on a road almost as straight and direct as those of France and nearly as good.

Bone was reached at 6 P. M. It is a prosperous little seaport, very new and European looking, though its history goes back to the Phœnician period. It is built on a portion of the site of the Roman Hippo Regries, of which St. Augustine was bishop at the end of the fourth century and where he died while the city was being besieged by the Vandals. On a hill overlooking



RUINS OF TIMGAD, CITY OF THE THIRD ROMAN LEGION IN NUMIDIA, BUILT BY THE EMPEROR TRAJAN.

places in Algeria, but has a garage where repairs can be made and gasoline bought (60 centimes a liter, or about 48 cents a gallon), and where the usual supplies are stocked.

The hot springs here must have been known and used at a very remote period of antiquity, for vestiges of Punic structures have been found, while Roman ruins abound in the vicinity. But by far the most interesting constructions are those of the springs themselves. These springs are almost twenty in number and the water gushes out at a temperature of 205 degrees Fahrenheit, nearly the boiling point. As it cools, the carbonate of lime with which it is very strongly impregnated is deposited, hardens, and forms a wall around the source which continually grows higher and higher. When it gets so high that the forces below can no longer drive the water up over the rim of the cone, the water seeks a new opening, which becomes another spring and begins anew the process of upbuilding. In this way, in the long course of ages, a chalk cliff nearly eighty feet high has been built up, and over this the water from the principal springs trickles, forming what is known as the Cascade. This cascade is unique among natural wonders, for it looks exactly like a petrified waterfall played upon by sunlight and showing nearly all the colors and tints of the spectrum, and its beauty is indescribable. The sight should certainly not be missed.

the plain on which the Hippo stood has recently been erected an imposing basilica to commemorate him. The best hotel at Bone leaves much to be desired in the matter of cleanliness and its stuffy rooms were freezing cold on the night of our arrival (March 29). But there is an excellent and well equipped garage there at which supplies of all kinds may be had. The price of gasoline was 2 francs 70c. for the bidon of 5 liters (about 45 cents a gallon), and we found here some Michelin inner tires which could not be obtained at Constantine.

Tunisian Frontier Roads Might Be Improved.

The road eastward from Bone to the frontier of Tunisia is one of the worst we encountered. As far as La Calle (86 kilometers) and for some distance beyond, it is encroached upon in places by a railroad track, and the roadbed itself was in very bad condition, especially between kilometer posts 45 and 55 (from Bone). Beyond La Calle there is a pretty stiff climb through cork forests, and then a succession of ascents and descents until the frontier is reached at Babouch, about 26 kilometers from La Calle. There are only two or three inconspicuous houses at Babouch, and we would have passed at full speed but for a gesticulating Arab who shouted "Douane" (custom house). If our car had been of foreign make we should have had to pay

duty. As it was a French car it was only necessary to show our *passavant*, or permit, to travel in France and her colonies.

Until last year the usual route from the frontier to Tunis was via Tabarka and Béja. This is the more direct, but at Bone we were told by the very intelligent and well-informed manager of the garage that beyond Béja the road is now impassable for automobiles, and that a new road by way of El Kef had recently been made a national route and put in good order. This involved a long detour inland and southward, but we found the road excellent and that within a month or two a cutoff had been constructed which saves a large portion of the extra distance.

From the frontier the road to Tabarca (20 kilometers) runs along the coast, affording fine sea views. Taking the road to El Kef we turned directly south and at once began a climb up the Groumir range which for steepness surpassed anything we had thought possible for automobiles. The rule of French road building is that no grade shall exceed 10 in the 100. Here the ascent for four kilometers must approximate 20 in the 100. Were it not that the roadbed itself was in perfect condition even the first speed could not have dragged us up. After the crest was reached there was a long and gradual descent of about 8 kilometers, after which the rest of the road all the way to Tunis was nearly equal to those of France. Both ascent and descent took us through magnificent cork forests, the trees of which had attained huge dimensions. Here and there also towered noble oak trees, the first we had seen.

Better Roads but Poorer Scenery in Tunisia.

The general aspect of Tunisia is that of a more developed country than Algeria. The population seems larger, the methods of tillage less primitive, the people more prosperous, the surface less rugged and mountainous, and, what is more important for automobilists, the roads are well planned from the engineering point of view and nearly always in first-class condition. As far as scenery is concerned, it is not nearly so attractive as Algeria—in Algeria we were never once out of sight of mountains—but for comfort in motoring it is much superior.

Stopping for lunch at the high-lying village of Ain Drahan, we reached the railroad again at Souk-el-Arba at 4:30 P. M. Here we found a comfortable little hotel (Hotel du Commerce), and having learned that decent accommodations could not be had between Souk-el-Arba and Tunis, 194 kilometers distant, we decided to remain overnight and finish our journey next day.

At the drug store at Souk-el-Arba gasoline may be obtained at the comparatively moderate price of 50 centimes a liter (about 40 cents a gallon). Here, as throughout Tunisia, the only gasoline sold is "Pratt's Naptha," which is put up in large tin cans holding 18 liters (5 gallons). It is necessary to fill up the reservoir here, as no more is obtainable before reaching Tunis, where the price is higher unless a special bargain is made.

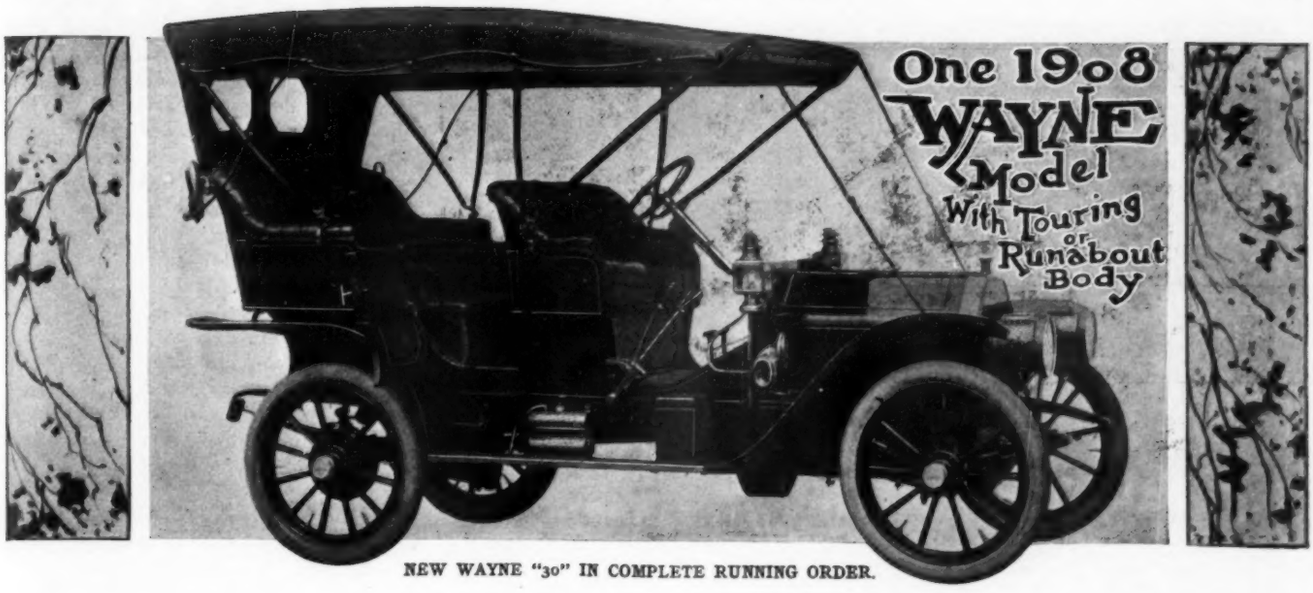
Twenty-two kilometers beyond Souk-el-Arba on the road to El Kef is the small Arab village of Nebeur, and three kilometers beyond this village a new-made road leads sharply to the left. This road, recently opened, is the "cut-off," and its 7 kilometers save 28 kilometers and a long and hard climb to El Kef, for El Kef is situated on a lofty plateau which looks down steeply on the plain and offers nothing of interest to the visitor. We were also told at Souk-el-Arba that no gasoline could be obtained there, but we did not make inquiries ourselves.

Turning sharply to the left again after the cut-off had been traversed, we found ourselves on the "grande national route" that runs southwest from Tunis to El Kef. The distance from Tunis was 161 kilometers, and the road all the way, except where repairs were in progress, was superb, though passing through a country that possesses no interest from the scenic point of view. At Teboursonk, on a hillside two kilometers off the main road, we stopped early for lunch, intending to visit afterwards the ruins of Dougga about 4 miles distant. Unfortunately for our plan a new road is in process of construction along the route of the old bypath, which has been totally destroyed, rendering Dougga inaccessible, except on foot. In a year the new road will be finished, and as it is a part of a national route it will be all that an automobilist could reasonably wish to travel over.

When it is practicable a visit to Dougga should not be missed; in fact it is well worth a special journey from Tunis, and many make it. The present inhabitants are Arabs living in miserable huts, but the ruins of the old Roman city or Thugga, which was founded by a colony from Carthage, are among the most notable in this part of Africa. One of them, the Temple of Jupiter, Juno, and Minerva, dating from the reign of the Emperor Marcus Aurelius, is well preserved and is one of the most beautiful relics of antiquity left to us. Other noteworthy monuments are the Theater, the Triumphal Arch, the Mausoleum, the cisterns, and a noble aqueduct that is no doubt part of that which anciently conveyed water to distant Carthage.

From Teboursouk to Tunis is 101 kilometers, and as the country traversed is flat and without interest and the road very good we covered the distance in a little more than two hours. When about 8 kilometers away, after climbing a slight hill, we came in sight of Tunis, nestling around the head of a deep bay almost land-enclosed. It gleamed white in the sunshine and a dozen minarets lifted their slender spires, but as the city lies very low and presents no prominent features it was difficult to distinguish it clearly from the neighboring towns of Carthage, La Marsa, and La Goulette. At 3:30 P. M., of Sunday, March 31, our long journey of more than 1,500 kilometers (934 miles) from Algiers ended at the Tunisia Palace Hotel, the best in Africa outside of Egypt.

THE "SHIP OF THE DESERT" AND HIS PILOTS.

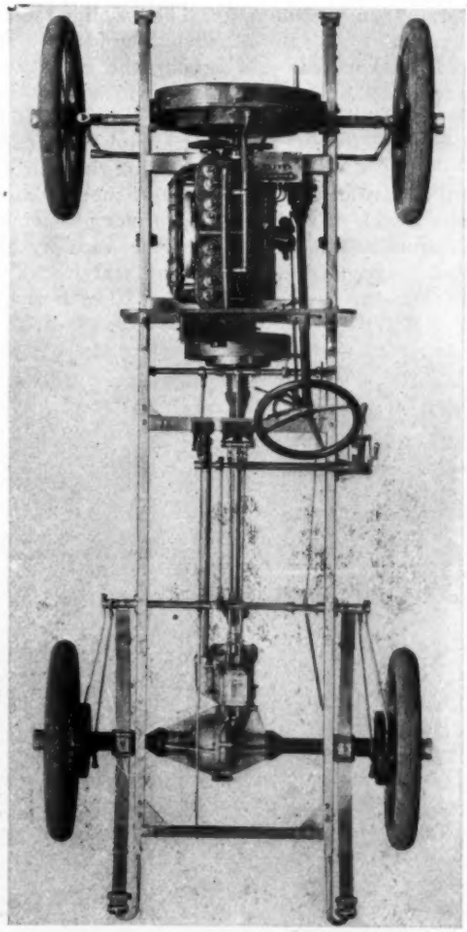


NEW WAYNE "30" IN COMPLETE RUNNING ORDER.

IN accordance with a previously adopted policy, the makers of the Wayne cars, the Wayne Automobile Company, Detroit, Mich., announce that, for the season of 1908, they will devote their entire attention and energies to the production of a single model. This will be known as the Wayne "30," and while it will be supplied either as a touring car or roadster, or as a closed car, the chassis construction and details will be identical throughout in every case, except of course where required to conform to the purpose of the model in question, such, for instance, as the additional rake given the steering column, placing of seats and similar details in the case of the roadster.

Motor Details.—Where the power plant is concerned, the standards set by the Wayne company's designers and adhered to consistently for the past two seasons, will again be followed, as having thoroughly demonstrated their fitness. The cylinders are of the best gray iron and are cast in pairs, with the water-jackets integral. The valve-seats are also made integral with the cylinders and long flanged gray iron guides are pressed into seats in the cylinders. The valves themselves measure 1 3-4 inches in diameter and consist of nickel-steel heads electrically welded to machine steel stems. The cam-rollers are in forked lifters with the ends projecting above the roller forks to enter slots in the flanged lifter-guide bodies. The pistons are of the usual Wayne construction and are made gas tight with the cylinder by four eccentric cut rings above the piston pin, while lubrication is facilitated by cutting three oil grooves in the lower part of the piston.

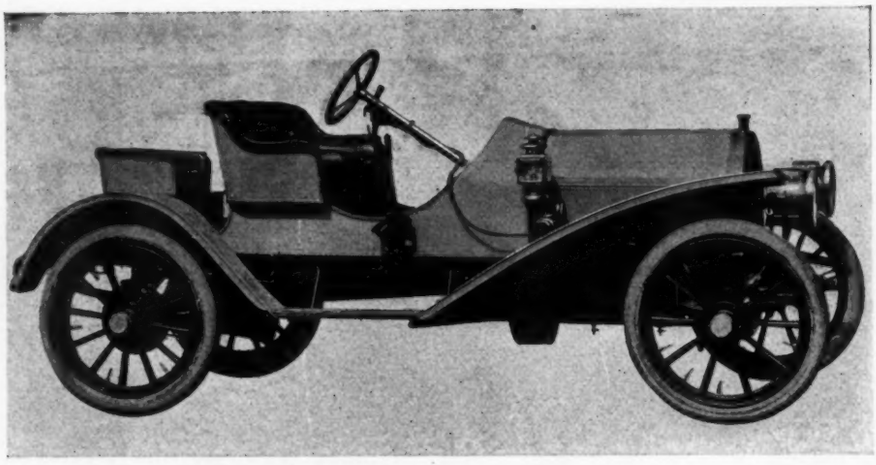
The connecting rods are drop-forgings with bearings consisting of Parson's white bronze half boxes, as are also the main or crankshaft bearings. The latter, as well as the camshaft bearings, are attached to the upper half of the aluminum crankcase, the lower part serving merely as an oil pan. The cams are made separately and are not pinned into place on the camshaft until the motor has been properly timed, thus insuring their accurate setting. The crankshaft timing gears are of steel and are enclosed in the crankcase, where they receive the benefit of the splash lubrication. The valves are all placed on one side and are operated by the direct lift method. Ignition is of the high-tension type, using the familiar four-unit coil mounted on the dash, and with accumulators as the source of current, while a mechanical force-feed oiler takes care of the essential of oiling, the main bearings being provided for by special leads from the oiler as well as by splash, in the crankcase, the oil-pan of which is suitably divided.



PLAN VIEW OF CHASSIS, WAYNE "30"

Cooling is provided for by a vertical tubular radiator of efficient design, consisting of a large number of small tubes and copper plates, the circulation being maintained by means of a gear-driven, two-pinion pump. This is supplemented by a fan. Considerable attention has been devoted to the matter of making every part of the motor as accessible as possible.

The Car's Foundation.—It is a question whether the motor or the chassis foundation, which is in turn the foundation of the entire car itself, is of greater relative importance, though logically the chassis frame and running gear should come first in a description. In the case of the Wayne "30" this consists of a pressed steel frame of the standard channel section of a heavy gauge of steel, substantially reinforced by gussets and cross pieces. The spring eyes and hangers are drop-forgings. Both the power-plant and transmission are supported directly from the main frame, weight being saved by the elimination of a sub-frame. The four supporting arms of the crankcase extend to each side members of the frame



WAYNE "30" ROADSTER FOR 1908, BUILT ON STANDARD WAYNE CHASSIS.

and are flanged to hang on top of the latter. The forward cross-member is of channel iron and is dropped 5 1-2 inches to receive the radiator, which is thus relieved of all destructive side strains tending to twist it from its foundation, and sooner or later causing bad leas. The suspension consists of semi-elliptic springs of substantial size at all four points and liberal-sized tire equipment is provided. Special attention has been devoted to the matter of brakes, two independent sets being provided. Both are located in special drums on the rear hubs, these drums being of pressed steel, measuring 12 inches diameter by 2-inch face. The inner faces of the drums are acted upon by an equalized set of internal expanding brakes actuated through toggles, while the external contracting brakes on the outer faces of the same drums are of the Raymond type. Both the external and the internal shoes are faced with camel's hair felt, and either pair of brakes is designed to have a high factor of safety, making it capable of holding the car under the most difficult conditions, independently of the other set.

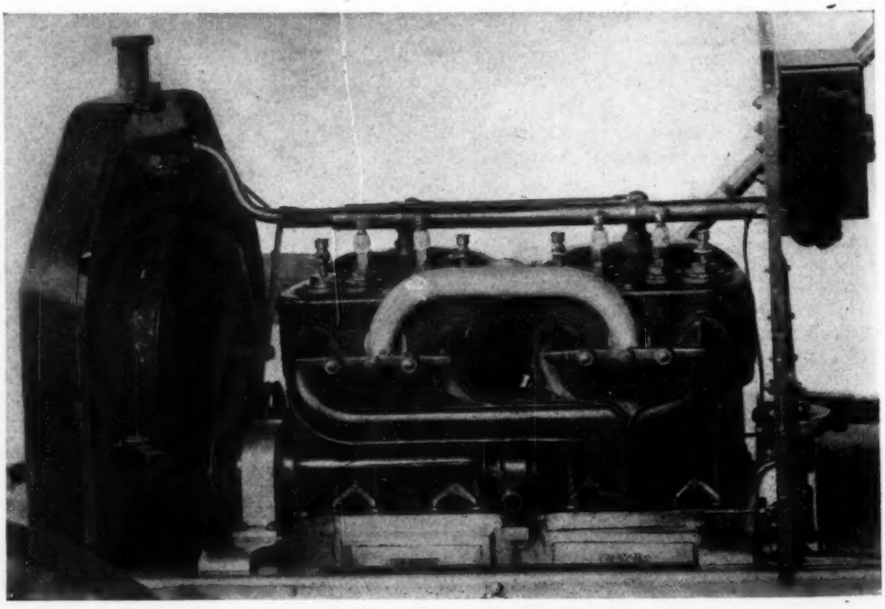
The Transmission.—The first step in the transmission of the power to the road wheels consists of a clutch of special design. It is in the form of a cylindrical drum cast integral with the flywheel and is of the internal expanding type. A leather-faced band pivoted at one end forms the engaging member. It is attached at the meeting end of flywheel turning direction, so that the movement of the flywheel tends to disengage the clutch. The engaging spring is only set at about 20 pounds pressure, so that the clutch is readily disengaged by a very slight pressure on the pedal through the medium of a sliding wedge.

The gear-set is of the sliding type with selective method of operation, all the pinions being of specially treated chrome-nickel steel, as is also true of the squared shaft on which they slide. They are cut of six pitch, but only to a depth equal to an eight-pitch tooth, thus giving a short, thick tooth especially adapted to withstand the hard service an automobile gear-set is always called upon to perform. The gear-box is conveniently located on the rear axle following out the plan of arrangement adopted by the designer of these cars on previous models, and which has been found to be so successful. Connecting the clutch and gear-set is a 1 1-4-inch solid steel shaft, 36 3-4 inches long and with self-oiling and dust-proof universal joints of special design at each end. While joints are an absolute necessity in such situations to compensate for the relative movement of the different parts of the car when traveling rough roads, or passing over obstructions, the design of the Wayne "30" in this respect is such that the maximum propeller shaft angle is but 2 1-2 degrees, and the shaft is practically level with normal load.

Realizing the importance of this essential, particular attention has been paid to the design and construction of the steering gear. It consists of an external right-hand thread and an internal left-hand thread, made on the steering shaft at its lower end and integral with the steering column proper and a nut moving on the latter. The movement set up here is communicated to two bellcrank levers—that is, the steering arm has a double bellcrank end, taking two compression links, one at each end in crutch seats, one compression link being pressed by the exterior thread nut movement and the other by the internally threaded screw plug. The thrust is taken up by a special ball-bearing, and by adjusting the cone of this bearing all lost motion in the steering action can be readily and accurately compensated for—an adjustment of the greatest importance, as even the best of steering gears will wear loose in the course of time and become a source of danger.

The gasoline tank is of the gravity feed type and is located under the forward seat. It has a capacity of 16 gallons, thus giving the car a wide traveling radius. As the mechanical oiler, which is bolted directly to one of the supporting arms of the motor, holds three quarts of lubricant, there is no extra tank provided.

The touring car body is of the straight-line type and is made of sheet aluminum and steel put on over wooden forms, the former providing a surface that can be japanned. It has a normal capacity of five, but with the addition of the extra folding seat in the tonneau has a seating capacity of seven persons. The runabout body is of the same construction.



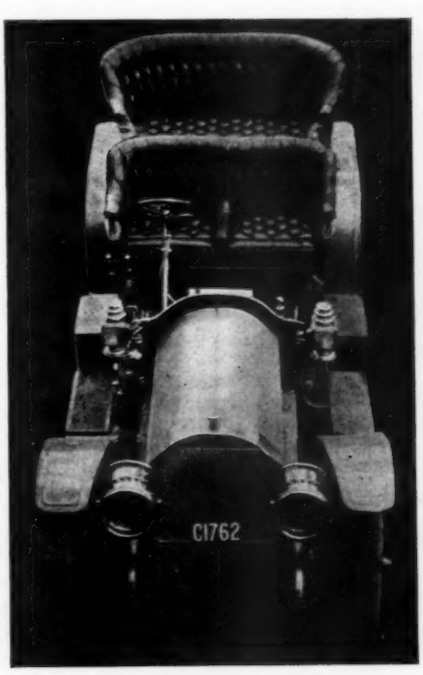
OPERATING SIDE OF NEW WAYNE "30" MOTOR, SHOWING COMPACTNESS OF POWER-PLANT.

The 1908 Continental of New Haven, Conn.

MODEL B, 40-HORSEPOWER CONTINENTAL, DESIGNER JOHNSTON IN REAR SEAT.

AN American car built after the best foreign standards, briefly suffices to describe the Continental, which claims New Haven, Conn., as its birthplace, with C. S. Johnston as its designer and builder, as well as its driver, as he has been a familiar figure in most of the competitions of the past season. To build and market the car in commercial quantities, the Continental Automobile Manufacturing Company was organized and has established a factory at New Haven. This concern has recently been admitted to the ranks of the American Motor Car Manufacturers' Association or, more familiarly, the "independents."

For the coming season, several models will be marketed, a standard four-cylinder touring car naturally forming the mainstay of the line. This is known as Model C and has a 120-inch wheelbase, 34 by 4-inch wheels and tires, six-passenger body of the familiar straight-line type, and lists at $3,000. With the motor placed farther back on the frame and with a special three-passenger semi-racing body, the same chassis is known as Model B, and will be the 1908 Continental roadster, listing at $2,700. The line will be completed by a 50-horsepower four-cylinder model and a 40-horsepower six-cylinder model, which will be known respectively as models D and E; 12 of each of these cars will be built on special order during the coming season. In Models B and C, which will, in consequence, form the bulk of the cars to be turned out, the motor dimensions are 4 1-2 by 5 1-4-inch bore and stroke, developing 40 horsepower at 1,000 r. p. m., although the car is nominally rated as 28-32 horsepower. The cylinders are cast separately, the valves all being interchangeable and mechanically operated. They are nickel-steel die forgings, while the crankshaft, which is slightly offset, is of high-grade steel machined directly from a solid billet. There are five main bearings of liberal size, Parsons' bronze being the material employed. The lubrication in this model is of the splash type, fed by a mechanical force-feed lubricator placed under the hood so that the sight-feeds may be seen through the dash. In Models D and E, splash lubrication, fed by siphon jet in connection with an oil-pump placed in the crankcase, will be employed.



CONTINENTAL AS SEEN FROM FRONT.

The clutch is of the multiple disc or ring type, of very compact and simple construction, running in an oil bath, and is bolted directly to the flywheel, occupying but little space. It consists of but five rings, two of which are of phosphor bronze and three of steel. A heavy, helical spring serves to engage the clutch, which is maintained in its position by bell hangers. The gear set is of the sliding type with selective operation and is of familiar standard design. It is enclosed in an aluminum housing and its pinions and shafts are of specially hardened chrome steel, running on Hess-Bright ball bearings. Final drive is by propeller shaft through double universals, and the rear-axle unit is fitted throughout with Timken roller bearings.

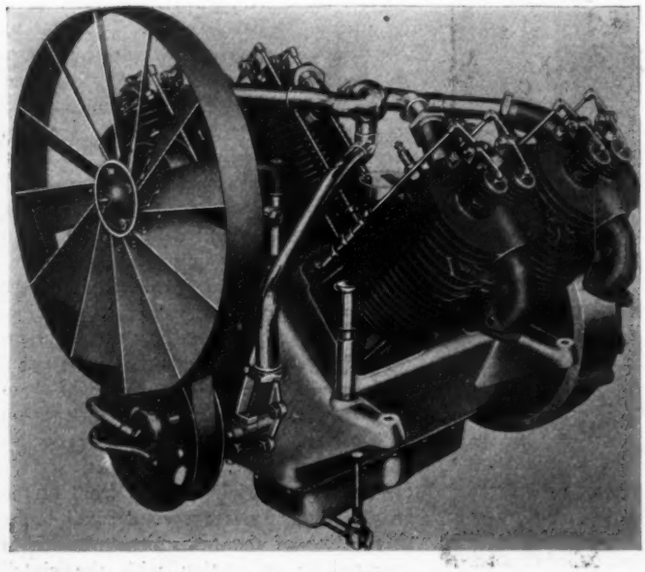
Among the special features of the car are its braking system and its ignition. The former consists of four powerful independent brakes which may all be operated simultaneously, or any one of them separately. The first is a 10-inch drum with 2-inch face, located on the propeller shaft just back of the gear-set, and is operated by a pedal. Just in front of the gear-set housing is a second small brake in the line of the transmission which is operated in connection with the clutch and facilitates gear-changing. The reg-

ular running brake operates on a 12-inch band with a 2-inch face, while the emergency brake has a 14-inch band with a 2-inch face, a camel's hair band acting against steel. As a regular equipment, the models in question are fitted with an accumulator and set of dry cells in reserve, acting through a standard timer and set of four unit Lacoste coils on the dash. But for an additional charge of $150, a special magneto of the firm's own design and construction is fitted. This is of the high-tension type with coil, and is extremely simple, provision being made for operating on either the magneto or storage cells, merely by throwing a switch a single set of plugs and wiring being employed for both systems, though the makers guarantee it to be as easy to start on the magneto as with the battery, as the motor is fitted with a special compression relief and can be easily spun by hand at a good speed.

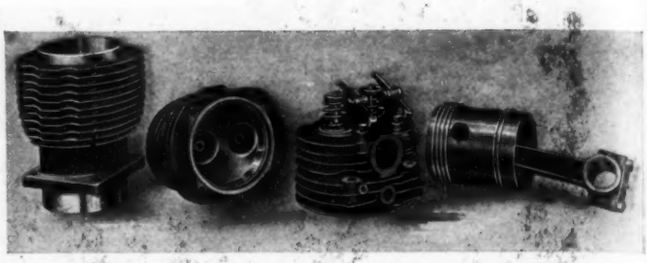
From the foregoing it will be evident that no attempt has been made to incorporate new or radically different ideas into the construction of the car, which is, as a whole, extremely simple, compact and practical, representing, as it does, the concrete materialization of what its designer has learned by close observation in handling the best cars of both foreign and American makes during the past five years. It is noticeable that the best foreign lines that have come to be regarded as standard to a great degree the world over have been adopted in the design of the Continental. For instance, the honeycomb radiator is placed slightly to the rear of the 2-inch I-beam axle, and this, together with the car's long, low, straight lines, gives it an unusually attractive appearance. The selective type of gear-set is equipped with the Mercedes pattern gear-shifting levers, while the 25-gallon gasoline tank is placed at the rear of the car. The entire mechanism is protected from beneath by a sheet-steel pan which has been designed not alone to act in this rôle, but with a view to minimizing the amount of dust raised from the road, as it causes no suction or back-draft.

MARMON 1908 LINE HAS SEVERAL MODELS.

In accordance with the practice that is coming to be more and more generally followed by American makers, Nordyke & Marmon, Indianapolis, Ind., builders of the Marmon air-cooled cars, announce that their line for 1908 will comprise several models. There will be two standard touring cars, Model G, listing at $3,000, and Model H, listing at $3,500. Both are equipped with the 90 degree air-cooled motors evolved by this concern. Model G is a five-passenger car, having a 104-inch wheelbase, 34 by 4 1-2 inch wheels rear and 34 by 4 inch front and equipped with an attractive straight-line type aluminum body. It is provided with a disc clutch, selective type of sliding gear set, shaft-drive and roller-bearing steering column. Model H is also a five-passenger car, but has sufficient room in the tonneau for two extra seats to accommodate seven in all. Its wheelbase is 114 inches, while its running gear is the same as Model G, quick detachable rims and tires being used in both cases, while its mechanical features are also the same. It is provided with a cast aluminum body designed in a combination of straight-line and curve effects.



THE NEW MARMON AIR-COOLED MOTOR WITH SEPARABLE HEADS.

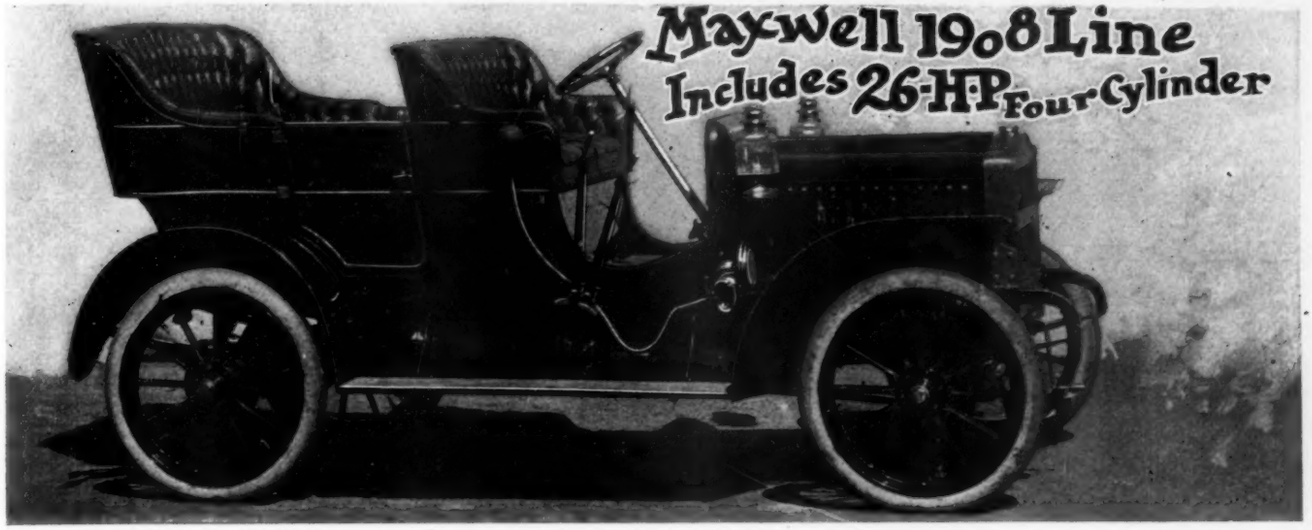


COMPONENTS OF THE NEW MARMON AIR-COOLED CYLINDERS.

The Model H will also be furnished with a four-cylinder vertical water-cooled motor, the cylinders measuring 5 by 5 inches, the remainder of the chassis being the same as when equipped with the standard Marmon air-cooled motor. The water-cooled motor is of Marmon design and is closely patterned after standard practice in every respect, with long connecting rods, large valves oppositely disposed and mechanically operated, magneto ignition, Marmon oiling system and other up-to-date features. Where the air-cooled motors are concerned, the numerous features characteristic of the Marmon design and construction as embodied in this special type have practically all been retained, with the exception of one radical improvement on which the makers dwell to a considerable extent in their announcement. The most prominent of these features are the 90 degree placing of the cylinders, the Marmon system of lubrication through the hollow crankshaft, and the double three-point suspension whereby the power plant is on one frame and the body on another.

To these has been added an improved form of two-piece cylinder construction. Instead of being cast in one piece, the new cylinders ars now made with detachable heads. The latter are cast with a liberal provision of radiating flanges and contain the exhaust and inlet valves and ports, the head as a whole being secured by four long studs passing down through the cylinder flanges and into the crankcase, the nuts being placed on top. This construction eliminates the bother of separate valve cages, reduces the number of joints and gives unusually easy access to the valves, as well as to the interior of the cylinder and the top of the piston head when necessary to remove carbon deposits. The head joins the cylinder just above the piston stroke and is seated on a large copper-asbestos gasket. Removable valve stem guides are set in the heads, the rocker arm support being held to the head by three studs with nuts and lock washers. The head is tapped for the spark plug and priming cock and the exhaust and inlet ports are threaded for elbows; once the latter are in place it is unnecessary to disturb them. The exhaust manifold is attached by flanges bolted to the elbows, while the intake is secured with a large brass union, this manifold being specially designed to deliver a uniform mixture to each of the cylinders.

With the construction above outlined, it has been found that the motor runs much cooler and valve noise is reduced to a minimum. At the end of a continuous 3,000-mile test, covering a period of three weeks' driving, the cylinder heads were removed and they were found to be remarkably clean, with the valves in perfect order. In addition to the changes mentioned, a number of minor details have been refined here and there as the result of experience, so that the Marmon air-cooled motors for 1908 will be better than ever.



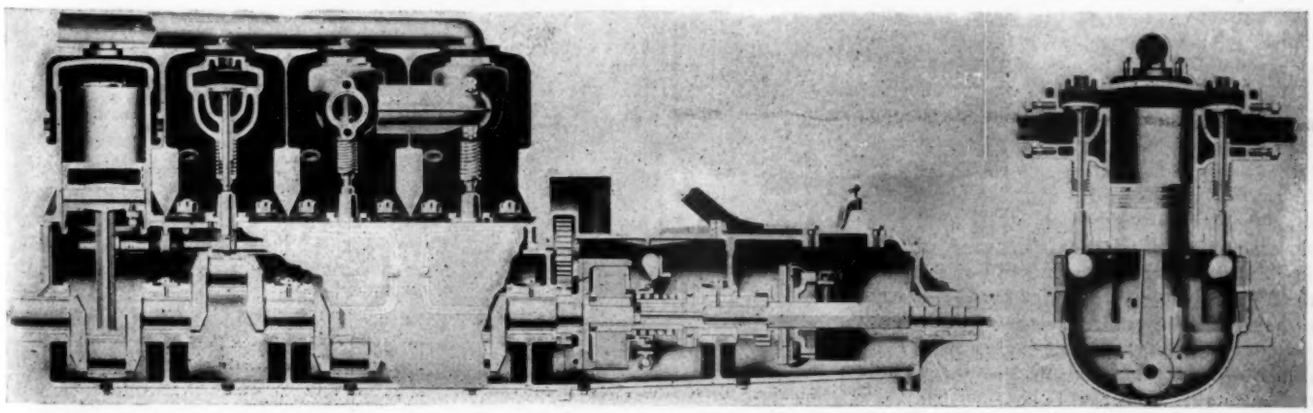
LATEST FOUR-CYLINDER ADDITION TO THE MAXWELL LINE FOR 1908.

IN connection with the appearance of the Maxwell line for 1908 an announcement of unusual interest is made. It concerns the advent of a new four-cylinder, 26-horsepower touring car of standard type and equipment to sell at $1,750. The 12-14-horsepower Maxwell runabout and the 16-20-horsepower two-cylinder opposed car will be as prominent factors as ever in the line, the latter being more generously equipped than formerly. In addition to the three brass oil lights, horn, tools and tire repair outfit, a top, gas lamps and generator are now included, despite which the car will still continue to list at $1,450. The runabout, officially known as Model LC, will also be listed the same as previously, viz., $825. The line is completed by the Model M, 40-horsepower touring car.

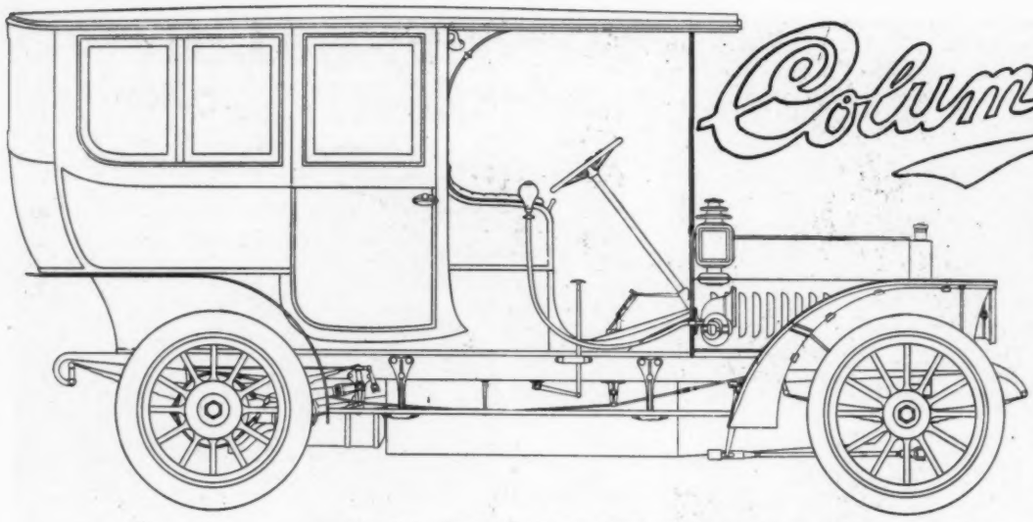
Interest centers chiefly in the new Model D, 26-horsepower car, the power-plant of which is of the unit type, so long a distinguishing feature of the Maxwell two-cylinder cars. In this form of construction the motor, clutch and gear-set become practically an integral unit and as such are not subject to the damaging stresses which frequently cause disalignment where these essentials are mounted separately, permitting relative movement between them. The motor is of the standard, four-cylinder vertical type, the cylinder dimensions being 4 1-4 by 4 1-2 inches, while the motor rating is based on the very conservative speed of 800 r. p. m. The cylinders are cast separately, making possible the use of five liberal-sized bearings, the inner three of which are formed by the crankcase compartment walls. Four good-sized hand plates are provided on each side of the crankcase, making it easy to reach and adjust any part of the interior mechanism of the motor without dismounting it or some other part in order to get at it. The valve chambers are of liberal proportions and are of the outboard or extension type, cast integral with the cylinders, while the valves themselves are all mechanically operated. The crankcase and the gear-set housing consist of a single aluminum casting, so that the power-plant entire is placed on a three-point suspension, thus giving the car great flexibility and a large capacity for enduring the kind of roads usually met with in this country.

The gear-set is of the sliding type with progressive operation, providing three speeds forward and reverse. Between it and the motor is interposed a multiple disk clutch consisting of 19 plates of a size affording an amount of friction surface greatly in excess of all reasonable demands. It is fully encased and runs in a bath of oil. An interlocking device prevents the shifting of gears without disengaging the clutch so that even an inexperienced operator cannot damage this essential of the car. Final drive is by propeller shaft through two universal joints of the cross type and which are equipped with a special form of oiling device. These crosses are designed to hold a quantity of oil, thus making lubrication automatic for long periods. The live rear axle revolves in a tubular housing of drawn steel, perfect alignment being insured by a special thrust bearing. The frame is of the usual channel section, pressed steel construction, tapering at the ends to accommodate the spring yokes, while the type of sheet metal body so long a feature of the Maxwell cars has been retained, the upholstery being of good quality leather and hair.

The wheelbase of the new car is 96 inches and the tread standard, while in complete running order it only tips the scales at 2,100 pounds. As a roadster this car is known as Model K, and lists at the same price. The details of the design and construction are the same as those just described, except that the touring body is replaced by a semi-racing type with the divided front seats. In other respects the chassis is identical with the Model D.



THE COMPACT UNIT POWER-PLANT OF THE NEW MAXWELL IN PART SECTION.



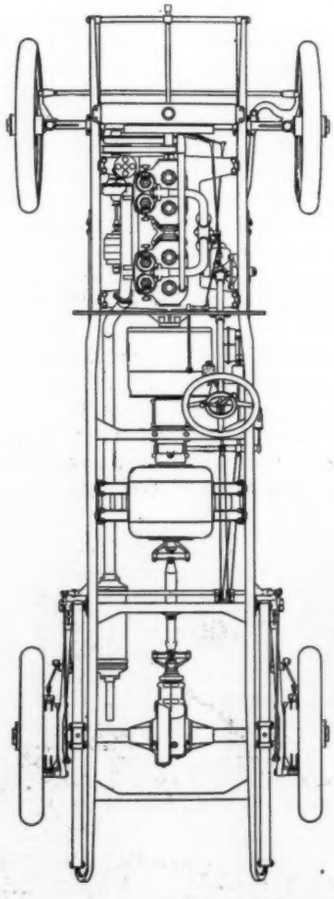
Columbia 1908 Leader is 48-H.P. Gasolene-Electric

COLUMBIA MARK 66-3 LIMOUSINE ON ELECTRIC TRANSMISSION CHASSIS.

INTEREST naturally centers about the "electric transmission" Columbia car, which will form the *pièce de resistance* of the Columbia line for 1908. As regards the others, the 28-horsepower car is continued with a few important changes, as is also true of the electric brougham, in addition to which a new chassis construction in an electric victoria phaeton will be listed, this car also being supplied with an inside-operated coupé body. But the chief stress is laid upon the combination gasoline-electric chassis with its gearless transmission, which under the A. L. A. M. formula is rated at 48 horsepower, its cylinder dimensions being 5 1-2 by 5 1-2 inches, and its normal r. p. m. rate is moderate.

This motor is a new design, its cylinders being cast in pairs, while the valve chambers are designed to occupy the least cubical space consistent with uniform water-jacketing of the exhaust valve seat and guide. Provision has been made for lubricating the inlet valve stem in order to prevent sticking. The spark plugs are set between the exhaust and inlet valves and are located directly in the path of the fresh incoming gases, while they are also waterjacketed. The inlet valves are operated by rocker arms while the exhaust valves are actuated by the direct thrust method, both being placed on the left-hand side of the motor, to which the centrifugal gear-driven pump and high-tension magneto are also attached below the frame line of the chassis. The magneto is a Gianoli, using a single coil and combined distributer and timer, so that both the magneto and battery systems of ignition operate through a common distributer and the same set of plugs.

Where this car is concerned, the greatest interest naturally attaches to its transmission, as it is the only one of its type built in this country. Coupled direct to the rear end of the crankshaft is a continuous-current generator of the ironclad type and extremely compact in form. The fields of this generator, which weigh considerably more than the ordinary flywheel, act in this capacity, as they are fast to the motor crankshaft, while the generator armature is coupled to the forward end of the propeller shaft, thus constituting the generator an electric clutch. As the fields revolve, they drag the armature round after them and the latter transmits the energy thus imparted to it directly to the rear-axle driving unit, which is of the standard type so long a feature of the Columbia cars. However, as there is always more or less slippage between the fields and armature in such an arrangement and as the latter does not provide a sufficient range of speeds or starting torque, an electric motor is mounted on the propeller shaft directly back of the generator. The slippage in question does not manifest itself as heat, as in the case of a friction clutch, to which it is analogous, but takes the form of electric current which is utilized in the motor just mentioned.



PLAN OF GASOLINE-ELECTRIC CHASSIS.

Changes in speed are all effected by means of a small controller handle similar to that used on electric street cars, there being five forward and two reverse speeds, the wiring of the controller being so arranged as to make different combinations with the generator fields and armature and the same essentials of the motor in order to obtain the various changes of speed. The driving effort of the engine can thus be multiplied greatly and the maximum effort of which the combination power plant is capable may be used continuously even with the car at a standstill, as the revolving field generator forms a clutch which may be slipped continuously and uniformly, and which will deliver the result of this slippage as electric energy instead of in the form of wasted heat. The control involves no change in the mechanical relation of the motor to the rear-axle driving unit, and in shifting from point to point, the driving effort is not disconnected from the bevel pinion, even momentarily. Only that portion of the energy developed by the motor which is represented by the slippage of the armature and field of the generator is transformed into electric energy, so that the makers figure that the transmission has an efficiency of 95 per cent., which is unusually high. The capacity of the electric clutch generator and motor in this system is about four times greater than it would be with a generator and motor acting in their usual capacities. That is, this system will transmit and control the power of the engine with one-fourth the weight and far greater efficiency than if all the power of the engine were used to drive the generator, which in turn delivered it to the motor to be transformed into mechanical energy, as too great a percentage is wasted in such a system.

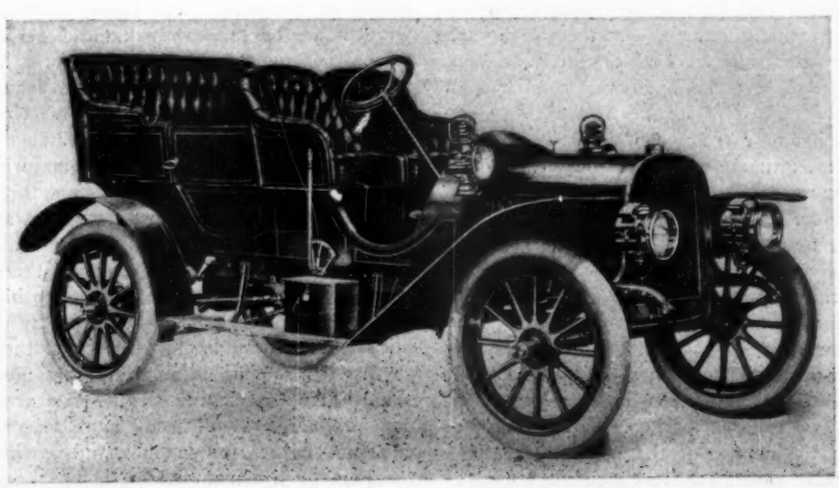
1908 Ramblers in Two Models

THE RACY-LOOKING RAMBLER ROADSTER FOR 1908.

NOTHING that will be placed on the American market in the shape of low-priced car during the coming season will show the hand of progress to any greater extent than is revealed by the design of the new Ramblers. The Jeffery designers have ever strained the last point to give the purchaser of a Rambler something more than the other fellow did for the same price, and in the evolution of what will constitute the leader of the Rambler line for 1908 they have succeeded admirably, as a brief review of the car's specifications will show. It is known as Model 34, and will be the only one of its kind that the Rambler factory will turn out during the coming year, although a roadster body will be fitted to the same four-cylinder chassis, the attractive *ensemble* of this combination being evident from the photograph reproduced at the head of this page. The remaining member of the line is known as Model 31, and is a continuation of the two-cylinder horizontal type of chassis with which the success of the Rambler cars has so long been associated. It is regularly fitted with a five-passenger body and the tonneau is detachable, thus making it convertible into a runabout at short notice. It is also listed without the tonneau, and with a torpedo deck as a nonconvertible runabout. Both models have been submitted to severe tests for several months past, and, having thoroughly tried them out, the reproduction of these two types will be undertaken on a large scale, as the entire factory facilities of the large plant at Kenosha, Wis., will be concentrated on them alone, thus greatly simplifying manufacture and insuring greater accuracy.

In the new four-cylinder model there have been quite a few changes in the power-plant. In fact, it may be said to have quite a new motor, embodying numerous improvements over the previous design. This is particularly noticeable where the crankcase is concerned. The latter is of the non-divided type, the crankshaft being inserted through the end of the case with the rear end and center bearings assembled and adjusted. The motor is supported by means of a tube passing through an extension of the forward end of the case supported on the side members of the frame, while a second transversely placed support is attached to the under side of the rear end of the crankcase. The valves are now set in outward ports or valve chambers and are operated by direct-thrust tappets. As was the case in the preceding model, the gear-set, propeller shaft and rear axle are built as a unit, and to all appearances they retain much the same features. There have been numerous changes of note, however, chief among which is the substitution of a selective type of operation in place of the old progressive gear-box, while both the main and lay shafts are now supported on roller bearings. The rear axle is similarly equipped and, as in this year's model, it is of the floating type. But the wheel hubs are of entirely new design, the brake drums being heavy steel stampings bolted directly to drop-forged hubs. These drums are 13 inches in diameter by 2 1-2 inches face, thus providing 410 square inches of braking surface in the aggrgegate on the four brakes, two being operated on each drum, one internally and the other externally.

A correspondingly important improvement consists of the adoption of 36-inch wheels with 4-inch tires, so that the 1908 Rambler may well be termed a popular-priced car with all the earmarks of the most costly. The higher wheels give easier riding qualities and provide a better clearance, but the former have been further increased by the adoption of liberal-sized semi-elliptic springs front and rear. The steering pillar is of new design and a larger wheel, 17 inches in diameter, is employed, the old type of Rambler control also having been superseded by the adoption of the standard type of levers set over the wheel on a stationary quadram. As a roadster there will be several changes made in the chassis. The car will list at $2,250 in either type.



SUCCESSOR OF THE POPULAR RAMBLER TWO-CYLINDER TYPE, MODEL 31.

The double-opposed motor of 5-inch bore and 6-inch stroke has been improved considerably. The valves have been placed at the side and are now actuated by direct thrust from the single vertical camshaft. This car, Model 31, will list at $1,400 complete, or $1,300 with rear deck.

THE AUTOMOBILE

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" "	in 1906,	791,000
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American Carriage Makers Coming into Their Own. It was not until the luxurious enclosed body made its appearance on the scene that the carriage maker actually came to a realization of what the coming of the automobile meant to him. With but one or two striking exceptions, prior to that time he regarded it, either with utter indifference as but the passing fad of the moment that meant little or nothing to him, or, foreseeing its ultimate expansion, viewed it in an antagonistic spirit as a menace to his own welfare. Then he awoke to the reality—to the fact that making coach and carriage work and repairs for automobiles was as much a legitimate part of his business as that of continuing to manufacture horse-driven vehicles, just as if a new and powerful rival had not been developed. Time has lent wings to his ambition, and now, instead of the attitude of apathy or antagonism, we actually find carriage builders and dealers constructing and selling the automobile entire. Instead of succumbing to the inevitable with bad grace, as many others who consider their interests menaced by the automobile were content to do, he has accepted the situation and taken advantage of it.

During the past fortnight there have been held in New York City the annual shows of two different branches of the carriage-building industry, and in the course of the business meetings held by the various interests concerned, much sound sense regarding the attitude of the American carriage builder to the automobile was expressed. It may all be summed up in the statement that the carriage builder realizes the permanency of the new style of locomotion, and, instead of combating it, will foster its interests and his own, whether they consist of building costly inclosed bodies, or low-priced power-driven buggies. In a word, he has simply made up his mind to sell automobiles to the same people he has formerly been selling carriages to, and it has taken many carriage builders a long time to realize that, in the main, they are the same people.

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Increasing Numbers of Autoists in the United States. It seems a pity that some far-seeing legislator with a statistical turn of mind could not have been responsible in earlier days, for some more logical and satisfactory form of registration than is at present in vogue in the majority of the States in this country. Abroad, it is far easier to arrive at an approximately accurate estimate of the number of cars actually in use owing to the systems of taxation in force, which, with the fine-tooth comb method of their application, let few escape. Here, on the contrary, we have a mass of meaningless figures that only serve to confuse, and, as time goes on, they are certain to become worse rather than better. A system of registration that took exact account only of cars in actual use, might be difficult to devise and more so to maintain, but there could be no objection on this score to one that took separate account of pleasure and commercial vehicles, and one that did not swell the registration figures every time a car changed hands.

Present systems of registration serve the chief object for which they were devised—that of identification, as well as could be expected, but the statistics which could thus have been automatically compiled throughout the country at the same time would have been of far-reaching interest, if not of considerable value. In this connection, the vast increases shown by a number of the States is noteworthy, and this is particularly true of the Eastern States, though on a percentage basis, the showing made in the West is truly astonishing. In New York, for instance, which has always led in this respect, the figures have advanced more than 12,000 in the past year, representing an increase of about 1-3; in Indiana, 3,000 have been added, or almost 50 per cent. of the registration of a year ago; and the same is true proportionately of the majority of the Eastern and Middle Western States, while the advances in the Pacific Coast States have been truly prodigious and almost beyond belief.

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One-price Livery Service for Urban Auto Owners. To one who had sufficient perspicacity to look ahead a few years, it was evident, even in the earliest days of the popularity of the automobile, that the new method of conveyance and the old had considerable in common, and sooner or later, that fact would be recognized and taken advantage of. The Britisher, with his greater conservatism and closer adherence to form, came to that conclusion about a year ago, so that the London autoist has had the benefit of a service, the inauguration of which antedates that about to be enjoyed by his New York confrère. This is the practice of taking automobiles at a fixed rate by the month or year, the charges to cover the majority of those items which have hitherto figured as extras, and the glorious uncertainty of which has made many a prospective owner hesitate at the brink, lest the plunge prove utterly beyond his financial depth. The charge for stabling a horse includes the cost of his maintenance where most of the things pertaining to his welfare are concerned, and there appears to be no reason why the same plan is not applicable to the automobile. In fact, the simile may be carried further, as shoeing is an extra that must be paid for and the same is true of tires under the new arrangement for keeping a car, although evidently with more reason in this case. Storage, cleaning, fuel and oil supplies, and repairing are all provided for, the item of tire maintenance being the only extra, so that the autoist can figure just what the upkeep of his car will cost.

AMERICAN FIAT MATTERS SOMEWHAT MIXED.

The Hol-Tan Company, Broadway and Fifty-sixth street, New York City, no longer possess the exclusive right to sell Fiat cars in this country, as was made apparent by the announcement this week that a new company, of which E. R. Hollander is the vice-president, would market the Italian car on upper Broadway and at prices somewhat under previous figures. It is known that some time ago differences of opinion arose between the Hol-Tan Company and the makers of the Fiat cars, with the result that each party to the agreement brought suit against the other. It is stated that the Hol-Tan Company has some other very extensive plans in view for the immediate future, and it is known that it made no effort whatever to interfere with Mr. Hollander, formerly one of the concern, from organizing a new company to exploit the Italian car in this country.

The other importers state that they are not disturbed by the reduction in Fiat prices, several of them claiming that they already have their values lowered sufficiently to meet whatever competition exists.

PITTSBURGH'S ACTIVE DEALERS' ASSOCIATION.

PITTSBURGH, Oct. 14.—Under the title of the Automobile Dealers' Association of Pittsburgh, seventeen of the largest automobile dealers in this city incorporated in August last with a capital of $5,000, and the organization is now in a highly flourishing condition. Spacious and finely furnished offices have been opened at 5919 Baum street, with a clubroom in connection for the members. A notary public has been retained in order to facilitate the procurement of licenses for the members, and many other conveniences provided. The officers are W. N. Murray, of the Standard Automobile Company, president; W. H. La Fountain, of the Atlas Automobile Company, vice-president; A. L. Banker, of Banker Brothers, secretary, and C. P. Moore, of the Keystone Automobile Company, treasurer. The Show Committee consists of W. N. Murray, W. H. La Fountain, Thomas I. Cochran, and Earl Kiser, Thos. I. Cochran being the show manager. The date has been set for April 4-11 at the Duquesne Garden.

SPEED REGULATORS TO HAVE DAY'S SPORT.

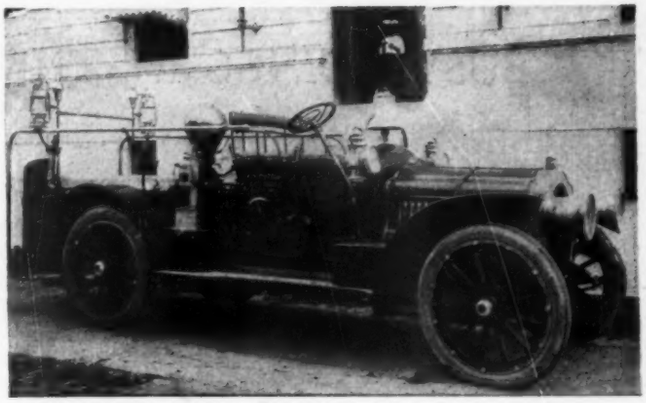
Motorcycle policemen will modify their usual daily round on Saturday next by a series of races among themselves at the Morris Park track. The program of the meet comprises a two and a five-mile race, a one-mile novelty race for a prize offered by Commissioner Bingham and one mile races for the championship of the Bronx, Brooklyn, Queens and the five boroughs. A number of valuable silver cups have been offered as prizes by prominent automobilists. Theodore K. Hastings will act as starter and Commissioner Bingham will assume the duties of referee.

A. S. M. E. REGULAR MONTHLY MEETING.

The second regular monthly meeting of the season will be held by the American Society of Mechanical Engineers on Tuesday evening, November 12, in the building of the Engineering Societies, 29 West Thirty-ninth street, New York. Charles R. Pratt will read the principal paper of the evening, on the gearless traction elevator, which is being installed in New York's two skyscraping towers. The subject will be exhaustively treated from the viewpoint of both the architect and the engineer.

DRAGON CONSIDERING NEW ENGLAND LOCATION.

BOSTON, Oct. 14.—Officials of the Dragon Automobile Company, including John Kane Mills, its president, Henry Rawle, treasurer, and A. L. Kull, sales manager, have been in New England for the past two weeks investigating several plants offered for a new home for their car. It is contemplated removing the Dragon plant from Philadelphia and considerably extending the capacity of the factory in its new location.



THOMAS FLYER CONVERTED INTO FIRE ENGINE BY A. C. WEBB.

HOW JOPLIN, MO., GOT AN AUTO FIRE ENGINE.

By a simple but ingenious arrangement A. C. Webb, of Joplin, Mo., has utilized a Thomas Flyer chassis in the building of an auto fire engine. Mr. Webb built his fire engine by placing a rotary pump on two cross frame members in the rear of the transmission, connecting the pump gear with the transmission by a shaft running from one of the auxiliary shaft gears and controlled by a lever placed at the side of the driver's seat. This gear connecting with the pump may be thrown into mesh and the rotary pump started when the scene of the fire is reached. Incidentally, the shifting of the pump gear into commission automatically cuts off the radiator from the motor, water being supplied for the cylinders from a separate feed from the rotary pump. When this gear is again shifted out of mesh, the radiator is automatically connected up with the motor and resumes its duties. It was thought necessary by Mr. Webb to provide this auxiliary water supply, owing to the fact that an automobile fire engine might be forced to stand for hours with the motor going at high speed and the pump in operation.

The first experiments were made at Buffalo, Mr. Webb spending two weeks at the plant of the E. R. Thomas Motor Company. Officials of the Buffalo Fire Department witnessed these tests and were enthusiastic over the results. With a rotary pump smaller than the one now in use on the car, a stream of water was thrown completely over one of the three-story concrete and steel buildings.

EIGHT-CYLINDER MAXWELL, WITH DESIGNER J. D. MAXWELL AT WHEEL.

This new creation of the Tarrytown factory is not designed as a stock addition to an already numerous line, but is for racing purposes, and it is the intention of its constructors to see what it can do in the way of speed on the southern sands this winter. Its power-plant consists of two standard Maxwell four-cylinder engines coupled tandem and its design is practically identical, where the rest of the chassis is concerned, with that of one of the racing Maxwells which was built to take part in the Vanderbilt elimination trials last year.

BUSY DOINGS IN THE REALM OF CLUBLAND.

BAY STATERS HAVE GYMKHANA SPORT.

BOSTON, Oct. 14.—The second annual gymkhana of the Bay State Automobile Association, held Saturday afternoon at the Newton athletic grounds, brought out a good list of entries. The honors went chiefly to Walter Schmunk, who drove a White steamer and succeeded in capturing first place in four of the contests. The contestants in the cigar race were required to start their cars at a given signal, drive to a barrel, stop, dismount, and take a match, remount and drive to another barrel, take a cigar and light it, and then drive once around the quarter-mile track. Schmunk's time in this contest was 58 2-5 seconds, just two seconds better than that of his nearest competitor, John L. Snow, who drove a Peerless. Mr. Schmunk also won the backward driving contest, circling the track in 44 3-5 seconds. Mr. Schmunk's third victory was in the barrel-touching event, and he touched all the barrels in 2:13 1-5 seconds. S. H. Baker, driving a Stevens-Duryea "six," was second, and Ralph Coburn with a Maxwell was third. The barrel-knocking-over test also went to Schmunk.

The twelve-miles-an-hour was won by Harry W. Knights in his Pierce Arrow, while A. A. Knights with his Oldsmobile was second and F. A. Hinchcliffe with his Winton took third place. The brake test, in which contestants were required to stop on signal while moving at 15 miles an hour, was won by John L. Snow with his Peerless, which he stopped in 18 feet 4 1-2 inches. Ralph Coburn with a Maxwell was second, stopping in 21 feet 4 1-2 inches. The obstacle race went to Ralph Coburn with his Maxwell. A. A. Knights was second with his Oldsmobile and Walter Schmunk with his White was third.

DELAWARE'S ASSOCIATION IS GROWING.

WILMINGTON, DEL., Oct. 14.—The Delaware Automobile Association is growing. At the annual meeting, held a few days ago, it was announced that it now has about seventy-five members. Thirty applications were received, which will be acted upon at the next meeting. The annual election resulted in the choice of the following officers: President, John Bancroft; vice-president, Ernest Dupont; secretary, Charles G. Guyer; treasurer, W. C. Jackson. Executive Committee: J. J. Satterthwaite, W. C. Spruance, Joseph Bancroft, F. S. Garrett, and P. S. Dupont.

Complaint having been made about scorching at night on the Wilmington & Kennett turnpike, the managers have decided to keep the gate men on duty until 11 o'clock hereafter, instead of relieving them at 7, which means that toll will have to be paid until 11 o'clock, whereas no toll has been charged in the past after 7 o'clock.

PHILADELPHIA'S PROGRESSIVE WOMEN.

PHILADELPHIA, Oct. 14.—The erstwhile home of that arch-traitor, Benedict Arnold—"Mount Pleasant," in Fairmount Park—has been converted to the use of the Quaker City's latest and most select organization of women automobilists, which glories in the title "La Moviganta Klaubo," and on last Wednesday afternoon the old Revolutionary mansion was the scene of the gathering of members and friends to honor the opening of the new clubhouse. There are 29 active members of the club at present, all of whom own and are able to drive their cars, besides which there are nearly 50 subscribing members and a long waiting list. Miss Margaret L. Corlies is president of the club, with Miss Frances C. Griscom vice-president, Miss Frances von Lehr Earle secretary, and Miss G. Dilworth Beggs treasurer.

The club had made an effort to purchase the old mansion, but an old ordinance of Councils prohibited its sale because of its historical associations, a feature which, in the eyes of patriotic Philadelphians, makes its sale a practical impossibility.

INDIANA CLUB DOES EFFECTIVE WORK.

LOGANSPORT, IND., Oct. 14.—That an automobile club need not confine its attention to cut-and-dried methods of furthering the interests of its members or of the fraternity generally was strikingly illustrated by an incident that will make one Indiana farmer remember the Cass County Automobile Club for some time to come. Miss Winifred Van Buskirk and Miss Laura Howe were driving on the Eighteenth-street bridge recently when a man in a wagon compelled them to stop, leave the car and stand in front of it until he passed, enforcing his demands with a revolver. The matter was kept quiet, not even the police being notified, but Secretary Fred M. Taft of the club undertook a still hunt. Nothing developed for a week or two and the perpetrator of the action doubtless considered it as a closed incident. An account of it was then published in the Logansport *Journal*, and John M. Bowyer, a farmer living south of the city, unguardedly boasted that he had been the hero of the day. One of the club members heard of it, and, taking the victims of the affair in a car, together with Bailiff Frank Livingston armed with a warrant, went to Bowyer's place and arrested him. He was brought before Justice Reid and pleaded guilty, receiving the limit sentence, which cost him a fine of $48.50.

MARYLAND AUTOISTS AFTER GOOD ROADS.

BALTIMORE, Oct. 14.—Backed with the hearty endorsement of the Maryland Automobile Association, the Frederick, Carroll, Howard and Montgomery Counties Roads Association, has just been organized for the purpose of obtaining better roads for the State. The meeting was attended by a large and enthusiastic delegation from the four counties, and it is probable that in the near future thousands of dollars will be spent for the macadamizing of the roads of Maryland. The meeting was held at Mt. Airy, and was presided over by Jesse P. King, with William A. Walker, secretary, and W. Frank Burdett, treasurer. These officers, together with Frank I. Lewis and Dr. R. Claud Flout, were appointed to frame a constitution.

DAKOTA HAS ANOTHER AUTO CLUB.

PARK RIVER, N. D., Oct. 14.—This city has about 25 automobile owners at present, with the prospect of having the number increased steadily in the future. With the object of improving the roads in the outlying districts and particularly those leading into the town, an automobile club has been organized with the following officers: President, Dr. T. E. Waugh; secretary, C. D. Lord; treasurer, J. D. Robertson. The club's membership roll already comprises practically all the town's autoists.

ROCHESTER HILL CLIMB, OCTOBER 19.

ROCHESTER, N. Y., Oct. 14.—A drizzling rain starting when everything was in readiness for the annual hill climb of the Rochester Automobile Club at the Dugway in Penfield, last Saturday, caused much disappointment to the fifty or more members of the club who were at hand to participate in the events. By common consent of those who had the matter in charge, the hill climb was postponed until Saturday, October 19.

CLUB NIGHTS RESUMED AT THE A. C. A.

NEW YORK, Oct. 14.—The Automobile Club of America will resume its usual weekly "club night" on Tuesday evenings, and Orrel A. Parker has been appointed chairman of the entertainment committee to arrange for suitable lectures, smokers, and entertainments. It so happens that the first club night this week will take place on Thursday evening, a combination of circumstances making this necessary.

GARDEN WILL NOT BE STATUELESS THIS YEAR.

Though the decorators who have charge of the preparations of the elaborate setting that is to transform Madison Square Garden for the reception of the automobile during the A. L. A. M. show, November 2-9, decided not to use plaster as in former years, they will not do away with that valuable adjunct to artistic effect altogether. Some quantity of staff will be used in reproducing the goddess represented in the illustration. The artists have labeled the new deity, and fixed her origin among the famous godheads of the Nile. She is Egyptian, and will visit the Garden during show week in numerous duplicates, looking down from her classical pedestals upon the beauties of the Italian villa, which will be the prevailing theme in decorative effect. The word-builder who wields the pen of publicity so effectively for the Garden show presents a pen picture, so effective of the enchantress, that we yield gracefully and publish his description in full:

"A CHUM OF ISIS."
Egyptian goddess only statue of the Garden show.

"One beautiful Egyptian girl, a college chum of Isis, possibly, is the sole thing in the line of statuary among the decorations that will be seen by visitors to the automobile show in Madison Square Garden. There will be several replications of her along the platform railing on each side of the Garden. The figure is particularly appropriate for the garden scheme of the decorations, as the single robe in which it is draped swirls at the bottom into eccentric outlines which resemble an inverted lily. The lady wears her hair à la Merode and has an expression of languor as she lightly holds a lotus flower poised on the crown of her head, while a smaller lotus lies upon one shoulder."

'FRISCO TO HAVE A DECEMBER SHOW.

SAN FRANCISCO, Oct. 12.—The members of the Automobile Dealers' Association of California came to life last week and held a meeting. For months some of the enthusiastic members have been trying to get the rest of the trade together to discuss many items of importance and interest, but they have been so busy selling cars that it was not until the other night that they found time. The magnet that drew them to the meeting place was a notice that at that time a date for the second annual automobile show in San Francisco would be selected. It was definitely settled to hold the show the first or second week in December, the exact date depending upon what time the most desirable building to hold it in could be secured. A committee was appointed to investigate several offers.

MAX L. ROSENFELD.
President Automobile Dealers' Association of California.

J. W. Leavitt, president of the association, at a meeting of the board of directors held prior to the meeting of the association, resigned his office on account of pressure of business. When it was found that it was impossible to get him to retain the office, Max L. Rosenfeld, widely known from the Atlantic to the Pacific in athletic circles as an officer of the Olympic Club, was selected to fill the vacancy.

A RAMBLER PARTY OF NEW OWNERS FROM JOLIET, ILL.

GOOD PLAN FOR INSTRUCTING NEW OWNERS.

The Joliet, Ill., representatives of the Rambler Company recently hit upon an excellent plan for imparting instruction to new purchasers of their automobiles. Five citizens of Joliet had placed orders for four-cylinder touring cars, all of which were ready for delivery at about the same time. It was therefore arranged that the five customers should visit the factory together, spend a day in inspecting the plant, and travel home by road, each on his own car, with an experienced driver as instructor. The trip of about one hundred and twenty miles was performed most successfully, each owner feeling confident in his machine and his own ability to handle it under all ordinary circumstances. In addition the five owners had obtained, by their visit to the factory, a better knowledge of automobile construction than is usually picked up in several years by the average automobilist. The plan is one that has been tried in scattering instances at various factories, but with few exceptions its execution has arisen from a desire of the new owner of the car to drive it home himself rather than pay freight charges, and has not been done on the initiative of the manufacturer. These trips have varied all the way from less than a day's drive—a matter of but a few hours—up to stretches of 500 or 1,000 miles that lay between the factory and the home of the purchaser, so that it would appear, not alone feasible but beneficial for the maker to recommend this course whenever the customer can be interested in attempting it.

R. G. HOWELL TO SELL NORTHERNS.

The R. G. Howell Company, recently incorporated in the State of New York, is about to establish its headquarters at 1657 Broadway, New York City, where the Northern, manufactured at Detroit, Mich., will be handled. In addition to the selling line, an endeavor will be made to provide parts for the numerous Northern cars now in this vicinity. The territory covered will include Greater New York, Long Island, Northern New Jersey, Southern New York, and the western half of Connecticut.

R. G. HOWELL, OF NEW YORK, IN TWO-CYLINDER NORTHERN

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

The Auto Accessories Sales Company, of 3919 Olive street, St. Louis, Mo., sales agents and distributors, are desirous of receiving communication from manufacturers of oil and grease pumps, horns, auto clothing, caps, gloves, etc.

L. E. Hoffman, traveling representative for the H. H. Franklin Manufacturing Company, advises that reports from Southern automobile dealers indicate that there will be an increase of at least 50 per cent. in the number of automobiles sold during 1908.

In order to obtain facilities to enable them to turn out cars on the orders already in hand, the Hatfield Motor Vehicle Company, Miamisburg, O., makers of the Hatfield buggyabout, has found it necessary to lease the large machine shop of David Allen, in that city.

A. Auble, of the Akron Auto Garage, left the H. H. Franklin Manufacturing Company's works, Syracuse, N. Y., at 5 A.M., October 2, in a 1908 D touring car and reached Akron, O., at midnight on the same day, making the run of 391 miles in 19 hours, an average of over 20 miles an hour.

In the October 3 issue of THE AUTOMOBILE, page 475, it was erroneously stated that the H. H. Franklin Manufacturing Company had five branches throughout the country. It should have read that the Franklin Automobile Company has three branches, one in each of the following cities: New York, Boston and Chicago, the home office being at Syracuse, N. Y.

In announcing the formation of the Oto Sales Company, of St. Louis, in THE AUTOMOBILE of October 3, it was stated that Charles E. Halliwell, one of the officers of the company, was formerly St. Louis representative of the Warner autometer. Mr. Halliwell was formerly president of the Kansas City Mirror Manufacturing Company. It is his brother, W. H. Halliwell, Jr., who is representative of the Warner Instrument Company, as sales manager for Missouri and Kansas.

Following the erection of the new Rainier factory at Saginaw, Mich., some changes have been made in the personnel of the Rainier Motor Car Company. At the annual meeting in New York the following were elected: John T. Rainier, president and treasurer; Paul N. Lineberger, vice-president and general manager; James G. Heaslett, second vice-president and chief engineer; Directors: John T. Rainier, Paul N. Lineberger, Jack A. Rainier, Harry T. Wickes, George C. Comstock.

The newly established collection department of the New York Automobile Trade Association is already justifying its existence, and as the association now numbers sixty-three of the largest garages and dealers in the city, it is probable that the bulk of the collection business in the metropolitan district will be handled through this efficient department of the association. The latest addition to the membership roll is the Charles Setzer Garage at 561 Pelham avenue, and the association is now the largest of its kind in existence.

The Newby Automobile Company, Newcastle, Ind., has just been organized with a capital of $15,000, and will shortly take over the retail business of J. A. Newby, Mr. Newby being one of the incorporators of the new company. The latter will erect a handsome garage in the near future, continuing the business in the interim at the Newby garage on West Broad street. The Maxwell cars are handled at present and it is the intention to establish a general sales agency for practically all of eastern Indiana. The directors are George M. Connor, J. D. Maxwell, Benjamin Briscoe, J. A. Newby and A. D. Ogborn. The officers are J. D. Maxwell, president; George M. Connor, vice-president; J. A. Newby, secretary and treasurer.

RECENT BUSINESS CHANGES.

The name of the Linkroum-Smelser Automobile Company, of 17 Bank street, Newark, N. J., has been changed to the Linkroum Automobile Company. The business will be continued by W. H. Linkroum, with S. H. Stern, former manager for E. Lamberjack & Company, of New York, as local manager.

Having severed their connections with the National Auto Top Company, G. A. Mackey, G. L. Wilson and E. Eisenstein have organized the New England Auto Top Company and will continue in the manufacture of automobile tops, slip covers, folding wind shields, auto upholstering and painting at Broadway and West Fifty-fourth street, New York City.

The Capital Automobile Company of Indianapolis, Ind., which was organized about one year ago, has been reorganized, President R. J. Irwin retiring from the company. It is understood that Mr. Irwin is to head a new company that will handle a large line of high-grade automobiles. The Capital Automobile Company had the Indiana agencies for the Overland, Reo, Jackson and Wayne this season, but in 1908 will carry the Olds and make a number of changes in their old line.

Two more important trade changes are announced in Boston. The first is that the Harry Fosdick Company, which last year handled the Thomas, will have the Springfield, with New England as its territory, the coming season. The second announcement is the formation of a new company to handle the Thomas line. This is the Whitten-Gilmore Company, consisting of Charles E. Whitten, a well-known dealer of Lynn, and Ernest A. Gilmore, now connected with the White Company in New York and formerly manager of the Rambler branch in Boston.

NEW AGENCIES ESTABLISHED.

The Hercules Auto Specialty Manufacturing Company, makers of the Hercules shock absorber, has just opened a salesroom at 1038 South Main street, Los Angeles, Cal., and will carry a line of auto specialties in addition to their own product.

PERSONAL TRADE MENTION.

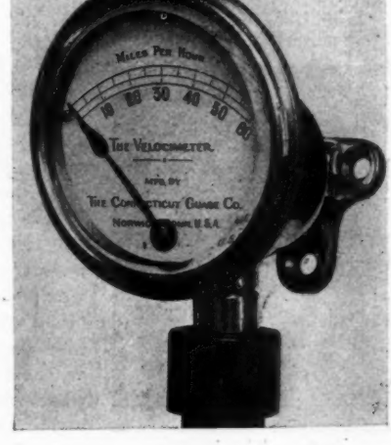
L. J. Sackett, until recently with the Simplex Automobile Company, of New York City, has recently severed his connection with that concern to go with the Allan-Kingston Motor Car Company, of Kingston, N. Y., and will represent the latter on the road.

Percy Owen, president of the New York Automobile Trade Association, and American representative of the Bianchi cars, is being congratulated on the arrival of a future president for the trade association in the person of Percy Owen, Jr., who arrived during the past week.

The successor to Milton J. Budlong, who retired from the presidency of the Electric Vehicle Company last August, has been selected in the person of Walter G. Henderson of Philadelphia, who has for some time been affiliated with the company as treasurer. Mr. Henderson will probably take up his residence in Hartford, in which city he is well known. After a trip to Europe, Milton J. Budlong has returned to Hartford. Reports are abroad that he will quit the automobile field entirely.

INFORMATION FOR AUTO USERS.

The Velocimeter.—This is a new instrument for indicating the speed alone of an automobile that is being placed on the market by the Connecticut Gauge Company, Norwich, Conn. It works on the centrifugal principle and is equipped with a large open face, round dial, calibrated in divisions representing five miles, this scale having been found perfectly satisfactory for ordinary road work. The case inclosing the mechanism is handsome and symmetrical in appearance, highly finished and is water and dust-proof. As in telling time, the driver of a car fitted with a velocimeter is easily able to tell the speed by the relative position of the hand, whether he can see the figures on the dial or not. The driving mechanism consists of the well-known Coates unit-link style of flexible shafting; the gears are hard brass with cut teeth and are held in place by



CONNECTICUT GAUGE COMPANY'S VELOCIMETER.

a specially designed universal clamp fixture, adapted to fit any make of American car without alteration or special work. The intention of the makers has been to produce an instrument of this kind at a popular price, but neither the quality of the material entering into it nor the workmanship has been sacrificed on that account.